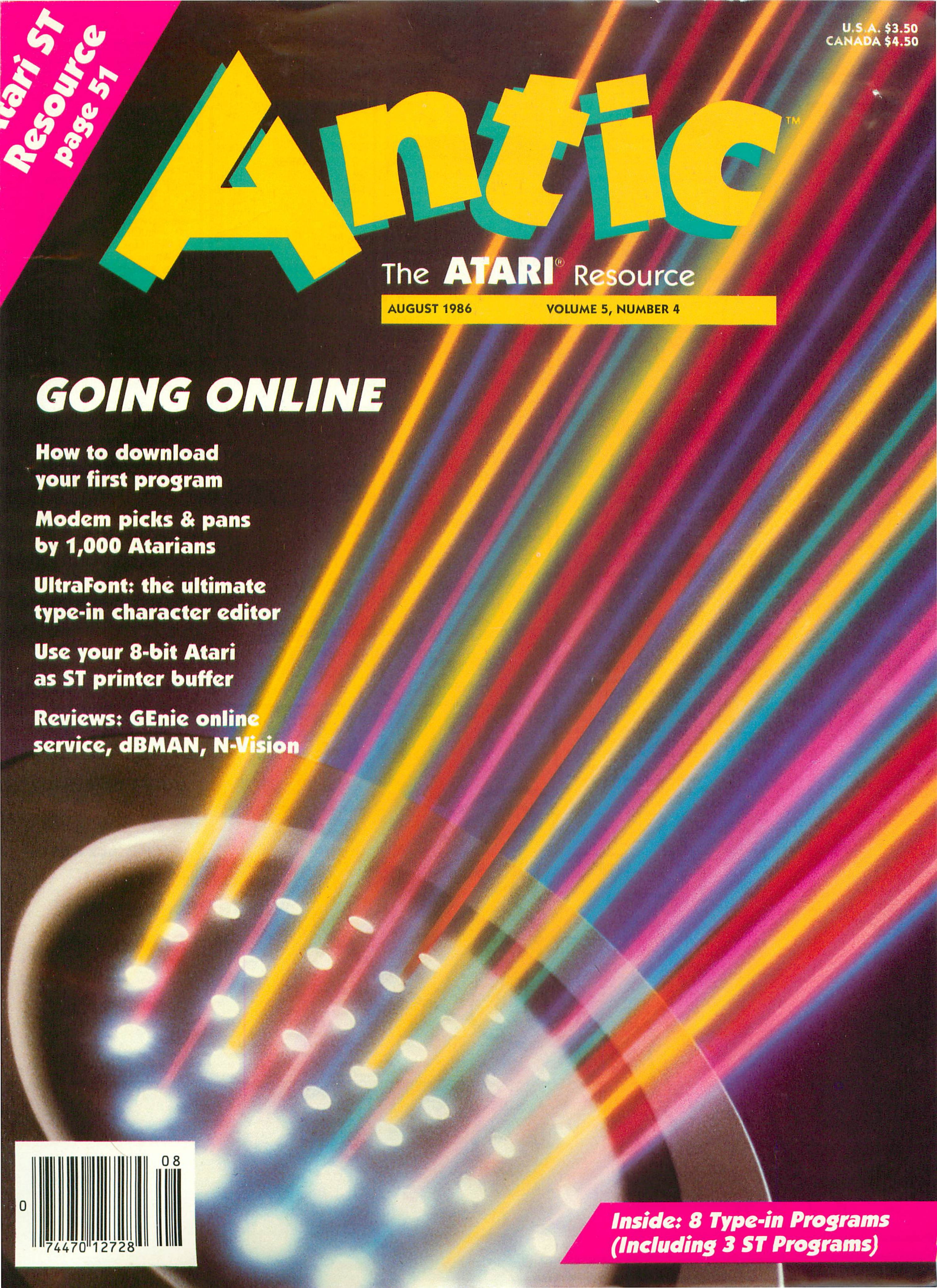


Atari ST Resource page 51

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AUGUST 1986 VOLUME 5, NUMBER 4

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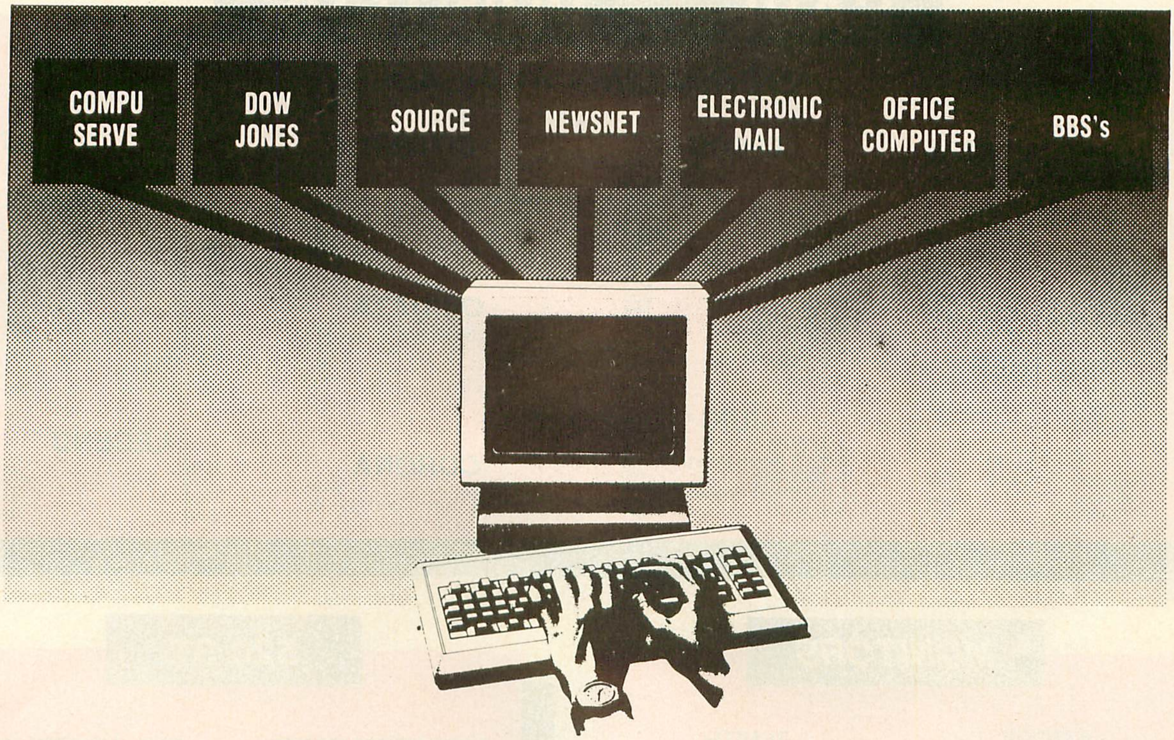
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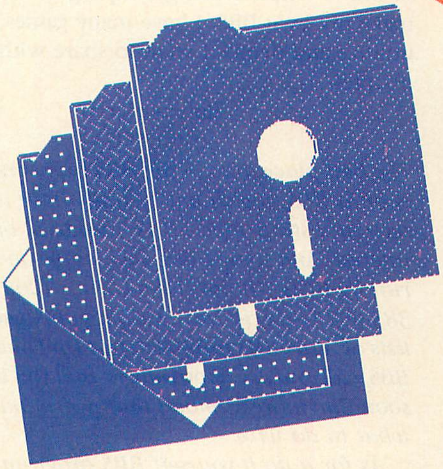
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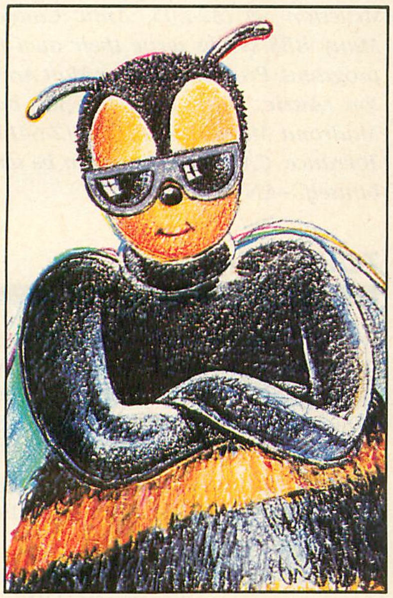
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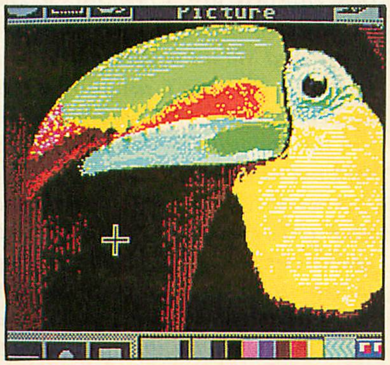
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I/O Board

*In keeping with our online theme, **Antic** is only answering telecommunications questions in this issue's I/O Board. General responses return next month.*

BAUD VS. BPS

I seem to remember a discussion on the difference between baud and BPS when refering to modems. Which issue was it in? Are these terms interchangable, or are they different measures completely?

Les Green
Lilburn, GA

*They're essentially the same. BAUD is a unit of signal speed used in communications, usually bits per second (BPS). Transmission at 300 BAUD is roughly equivalent to 300 characters per minute. The term is derived from the last name of J.M.E. Baudot, a nineteenth century Frenchman who developed the Baudot code for telegraph transmission. This was covered in the August, 1985 **Antic**, page 12.*—ANTIC ED

STINKY SOFTWARE

I own an pre-Supra MPP 1000-C modem. But to be frank, I think the terminal software that came with it stinks! Can you suggest new software I could download from online or buy?

Marc Whipple
CompuServe ID
73147,3070

You're not condemned to use the software packaged with any modem. It's usually included by manufacturers as a courtesy to get you started online. For the MPP, go to the Atari 8-bit SIG on CompuServe, type BRO/KEY MPP and download the file listed as MSCOPE.XMO—the version of TSCOPE for MPP modems. It's also available from the Antic Catalog ($10, PD040). A version of AMODEM for MPP modems can be found online under AMOMPP.XMO. Backtalk also works with the MPP ($19.95, Antic Catalog, AP154).—ANTIC ED

BBS QUEST

I have just purchased an Atari 1030 modem and was wondering where I can find a list of BBSs and modem users that I can get in touch with. I also would like to know where I can get a program to make my own BBS. I have many games, utilities and demos I want to share with people.

Robert Harris
Austin, TX

The best place to look for BBS numbers is on a BBS, which will usually have a section listing other BBS numbers of interest. And some BBSs, such as the one run by BUG—Boise Users Group, (208) 383-9547—specialize in keeping updated lists of Atari BBS numbers. Just find one BBS, call and ask about others, and you'll soon find more numbers than you know what to do with.

*As for a do-it-yourself BBS program, we know of only one commercially available for the Atari, Bulletin Board Construction Set ($24.95, Antic Catalog). Many BBS sysops write their own BBS programs. Pro*Term author Matt Arrington (**Antic**, 1985) runs the 300 baud Madrona Marsh BBS (213) 212-6414 in Torrance, CA with a program he wrote himself.*—ANTIC ED

TOUGH CHOICES

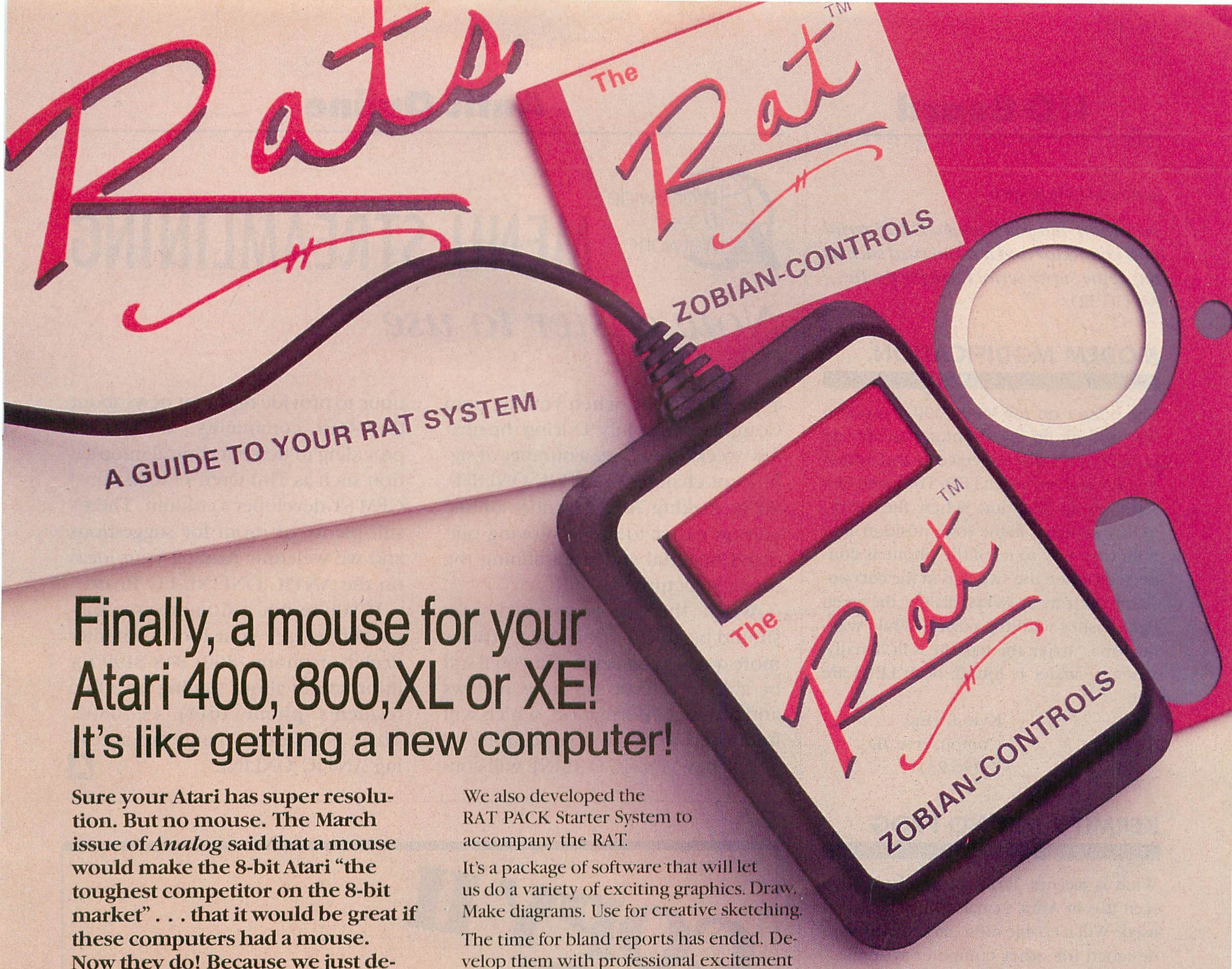
I am in the market to buy a modem and have narrowed my choices to the Atari 1030 or XM301, and the Supra 1000-E. Which best suits an intermediate programmer who would use it with online services and maybe eventually start a BBS? Can any of these be used with an Apple IIc or IIe?

Kevin Westerdorf
Cincinnati, OH

To run a BBS on the 1030 you'll need a ring detector. Some people build their own ring detectors, schematics should be available from most users groups. The Supra and XM301 both have this feature built-in. You can't use any of these modems with an Apple computer, as they are direct-connect modems specifically tailored to the Atari.

A non-direct-connect (external) modem such as the Hayes or a Hayes-compatible like the Anchor Volksmodem 12 will work with both Apples and Ataris. You'll need an Atari 850 interface to make the Hayes modem work with an Atari computer. You can plug right into the Apple IIc

continued on page 8



Finally, a mouse for your Atari 400, 800, XL or XE!

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I/O Board

continued from page 6

serial port, but you'll need a DB-25 serial port connector and a serial card such as the Apple Super Serial Card for the IIe.—ANTIC ED

MODEM MODIFICATION

The buzzer on my MPP 1000-C modem was waking up my sleeping parents late at night, so I disconnected it and added one red and one green LED. The green one stays on all the time when the DATA/VOICE switch is in the voice position, and is an easy way to tell if the phone is connected. When the switch is in the data position, both are lit. When dialing, the green light flashes with the pulses. While waiting for a carrier, the red one is lit. Finally, when a carrier is found, both LEDs are out.

Kyle Ewing
CompuServe ID
74156,2311

KERMIT AIN'T NO FROG

What is Kermit Terminal Emulator (I've seen this in Antic's catalog) and how is it used? Will it enable me to receive software designed for other computer systems?

Gary Cerasoli
Medford Lakes, NJ

Kermit, which really is named after Sesame Street's Kermit the Frog Muppet, is a file transfer protocol that monitors the flow of information between diferrent types of computers. The first Kermit implementation, developed at Columbia University in 1981, linked a DEC-20 mainframe to a CP/M-80 microcomputer. With Kermit, you can download software designed for other computers, but you won't be able to run it on your Atari. For more about Kermit, see Charles Jackson's article in the August, 1985 ***Antic****, page 25.*—ANTIC ED

NEW OWNERS COLUMN
New Owners Column returns next month in **Antic**'s September issue, with Lesson 6: Subroutines.

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When the job is finished, you should be able to locate new articles more quickly than ever. But you'll still be able to refer to previous reviews and product information, which will be moved to an archive section.

The new ANTIC ONLINE will continue to provide the latest news about the Atari community, as well as providing in-depth technical information such as Tim Oren's Professional GEM ST developer's column. There's still plenty of room for suggestions and we welcome reading your ideas on the ANTIC ONLINE I/O Board.

If you're not a CompuServe subscriber yet, see your local computer dealer or phone (800) 848-8199 for information about signing up. Ohio residents phone (614) 457-0802. There is no extra charge for accessing ANTIC ONLINE.

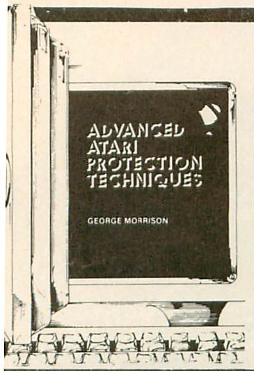


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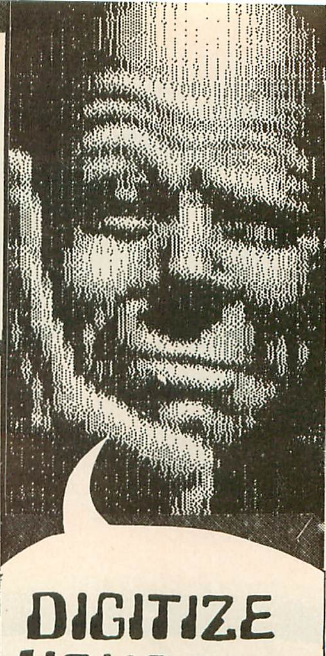


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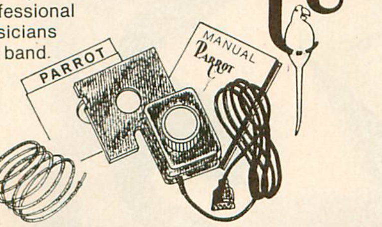
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A
B
C

GOING ONLINE

by GIGI BISSON and CHARLIE JACKSON

Step-by-step to your first download

Dear Antic:

*I'm having problems downloading software from SIG*Atari with my 800XL, 1030 modem and HomeTerm. Help!*

Paul Marquette
(The blind, stumbling user on CompuServe)
Auburn, IL

CompuServe can turn into ConfuServe if you don't know your way around. Wandering through any online service, be it Delphi or Dow Jones or Plato, is like roaming around in the dark through the stacks at a huge university library—you'll never find your way around until you get lost a few times.

We can't show you everything, so we'll show you how to do the one thing readers ask us about the most:

HOW TO DOWNLOAD SOFTWARE

When you download, you're simply transporting a file—a conversation you had on a Special Interest Group (SIG), an electronic mail message, or a program — from CompuServe's huge Digital Equipment VAX mainframe computers in Columbus, Ohio, over telephone lines and "down" into your computer. "Uploading" means going the other way—sending something from your Atari "up" into the big computers at CompuServe.

PUT YOUR MANUAL AWAY

Sound easy? It is, once you learn. First, put your CompuServe manual away—consulting it will only make you thoroughly confused. With these instructions, even if you're a total novice, it should take about 30 minutes to do your first download. We think it's a small price to pay for "free" software. After you stumble around a few times, you'll be doing downloads completely from memory—in a matter of minutes. Later, you can take out that CompuServe manual, turn to page 28 of the Forums section and discover how to turn off the menus completely, speeding the process up even more.

Our system is an Atari 800 computer with disk drive and a Hayes 1200 baud Smartmodem. In this article, we'll demonstrate Express, which according to our reader surveys is the most widely used 8-bit Atari telecommunications software. We downloaded our copy of this public domain program from CompuServe. You can also obtain Express from an Atari users group. The Antic Catalog carries Express 1030, for the Atari 1030 modem ($10, PD0025), and Express 850, for modems requiring the Atari 850 interface ($10, PD0024).

If you already know how to log on to CompuServe, skip ahead to the Welcome to Compuserve section below. Otherwise:

1. Boot up Express on your Atari. The 1030 and 850 versions of Express are almost identical.

The main menu appears. Just like the menu in a restaurant, it offers many specialties we can "order"—in this case, by pressing a key. The menu "toggles" back and forth with the [OPTION] and [SELECT] keys.

> **We spent hundreds of hours wading through CompuServe so you won't have to**

2. Set the software for the mode that your information service requires. In this case:

Mode: **ASCII**

To do this, type the letter **A**—it will toggle back and forth from ASCII to ATASCII.

Duplex: **FULL**
Parity: **NONE**

continued on next page

Sarah Waldron

3. Type **E** to dial manually, and type in your nearest CompuServe telephone number. This information comes in the CompuServe starter kit. Press [RETURN]. The computer will beep and you'll see:

Connected!

Don't believe it—this software lies. Wait a few seconds until you see:

CONNECTED

If it doesn't connect, start over. Charlie and I tried five times before it worked. Now hold down the [CONTROL] key while you type **C**.

When you use an online service or a Bulletin board, you are really using your Atari as a remote terminal. You are now "leaving" your Atari computer and logging onto CompuServe's VAX computers in Ohio. Express 850 is still in memory, and you'll go back to it later.

You're asked for your CompuServe ID number, otherwise known as a PPN. (Antic readers are always asking us what this means. Contrary to popular belief, it does not mean "Please Pay Now." PPN stands for "Project Programmer, Number.")

When you see these "prompts", type what they ask for:

USER ID: **12345,678** (your user ID number)

PASSWORD:

Your password will be "invisible" when you type it in. If this is your *first* time on CompuServe, at this point you'll need to follow the rather confusing procedure in your starter kit to finish the log-on procedure. If you're not a CompuServe subscriber yet, see your local computer dealer or phone (800) 848-8199 for information about signing up. Ohio residents phone (614) 457-0802.

WELCOME TO COMPUSERVE

You'll get this menu first:

```
CompuServe                    TOP

 1 Subscriber Assistance
 2 Find a Topic
 3 Communications/Bulletin Bds.
 4 News/Weather/Sports
 5 Travel
 6 The Electronic MALL/Shopping
 7 Money Matters/Markets
 8 Entertainment/Games
 9 Home/Health/Family
10 Reference/Education
11 Computers/Technology
12 Business/Other Interests
Enter choice number !
```

CompuServe is structured like a pyramid. Picture this menu as resting at the top of thousands upon thousands of menus that form the base of a vast, perhaps even infinite, pyramid. By typing **T** at any **!** prompt, you'll always eventually work your way back up the pyramid to this first menu. If you ever get lost, (and you will, believe us) think of it as home.

TAKE THE FREEWAY

Why meander on back roads when you can take the freeway? That's what the CompuServe GO commands are like—a shortcut that bypasses all the intermedate menus. Any time you see a ! prompt, you can type GO ANTIC, for example, and be whisked into ANTIC ONLINE, or GO CB-1 and—boom—you're in the CB simulator. A complete list of these commands is published monthly in CompuServe's *Online Today* magazine.

BOOKS ABOUT ONLINE

Online Services can be expensive if you don't have any idea what's going on. Users need a roadmap, and a good book provides that map. Here are a few:

THE JOY OF COMPUTER COMMUNICATION
by William J. Cook
Dell Trade Paperbacks
$5.95, 182 pages

This *Newsweek* reporter's breezy intro to the online world is limited, but worth reading for the chapter on improving your sex life with online dating services.

CONNECTIONS: TELECOMMUNICATING ON A BUDGET
by Robert Chapman Wood
Scott Foresman and Company
Glenview, IL
$15.95, 264 pages.

Some limited Atari 8-bit specific information, but worth checking into for irreverent, outspoken reviews of services, good and bad, for the budget-minded telecommunicator.

HOW TO GET THE MOST OUT OF COMPUSERVE,
Second Edition
by Charles Bowen
and David Peyton
Bantam Books
New York, NY
$16.95, 322 pages

Columnist John Dvorak tells the story about the time comedian and computer hobbyist Robin Williams was visiting his house. "The first time he saw *Get the Most Out of CompuServe* he held it to his chest and said 'I need this book.' That's when I realized that Bowen and Peyton had stumbled onto a hot property." Heck, you need this book. Throw away your CompuServe users manual. This invaluable resource by two dedicated online addicts is clearly a labor of love. Peyton is the sysop of the GoodEarth Special Interest Group and frequents the CB Simulator under the alias "Hermit Dave," and you can even send electronic mail to the authors. Also from the same authors and publisher: *How to Get the Most Out of The Source.*

In this case, at the ! prompt, type **GO ATARI8** to reach the Atari 8-bit forum in SIG * Atari:

Enter choice number ! **GO ATARI8**

If this is your first visit to SIG * ATARI, your first stop will be this menu:

ATARI 8-Bit Forum
VISITOR'S MENU
1 Membership Information
2 Forum Administrators
3 Instructions
4 Visit ATARI 8-Bit Forum
5 Join ATARI 8-Bit Forum
0 Exit
Enter choice :

Membership in SIG * ATARI is free.

enter choice : **5**

Just follow the prompts to join. (If you're already a member, you will bypass this and go directly to the forum, saving valuable time.)

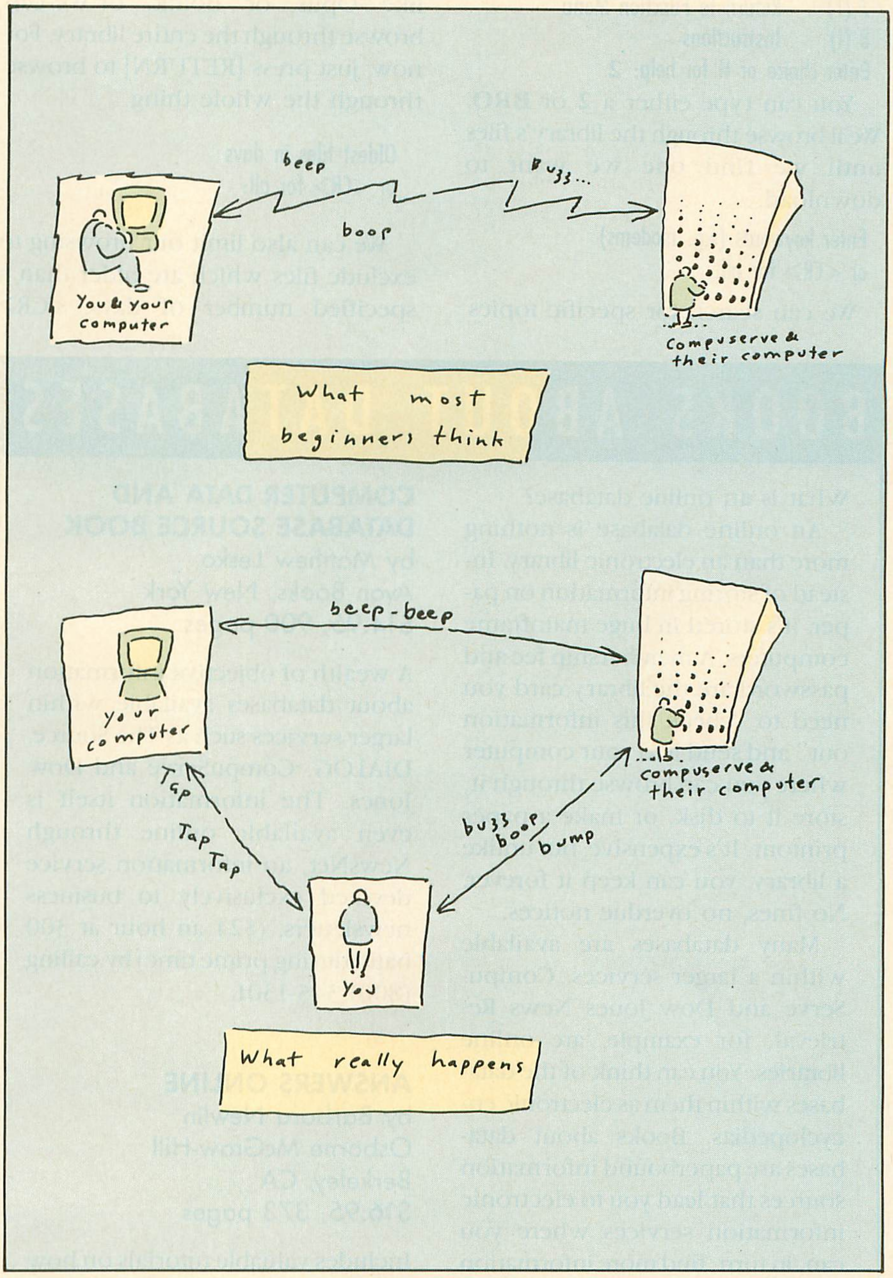
Please enter your name: **John Doe**
John Doe
Is this correct? (Y/N) **Y**
Inserting name and ID...
Welcome to ATARI 8-Bit Forum, V. 4A(63)
Hello, John Doe
Last visit: 14-May-86 14:25:26
Forum messages: 156437 to 157146
Last message you've read: 0
No members are in conference.

DOWNLOADING AT LAST

Now that we're in SIG * Atari, let's download a file! Here's the first menu you'll see:

ATARI 8-Bit Forum
FUNCTIONS
1 (L) Leave a Messge
2 (R) Read Messages
3 (CO) Conference Mode
4 (DL) Data Libraries
5 (B) Bulletins
6 (V) View Member Directory
7 (SS) Set Subtopic
8 (OP) Set User Options
9 (H) Help
10 (E) Exit from ATARI 8-Bit Forum
Enter choice : **4**

This tells SIG * Atari we want to use one of its Data Libraries.



DATA LIBRARY SUBTOPICS
0 General
1 GAMES
2 Telecommunications
3 Utilities
4 Graphics
5 Application pgms
6 Sound & Music
7 HOT News/Rumors
8
9
10
Enter choice : **4**

This tells SIG * Atari we want to use Data Library number 4, the Graphics library. You'll find downloadable Atari software in these libraries, but you may also find text files, news stories and tutorials.

DL 4—Graphics
1 (DES) Description of Data Library
2 (BRO) Browse thru files
3 (DIR) Directory of files
4 (UPL) Upload a new file
5 (DOW) Download a file
6 (DL) Change Data Library

continued on next page

7 (T)   Return to Function Menu
8 (I)   Instructions
Enter choice or H for help: **2**

You can type either a **2** or **BRO**. We'll browse through the library's files until we find one we want to download.

Enter keywords (e.g. modems)
or <CR> for all:

We can search for specific topics like "Opus" or "Boink," or we can browse through the entire library. For now, just press [RETURN] to browse through the whole thing.

Oldest files in days
or <CR> for all:

We can also limit our browsing to exclude files which are older than a specified number of days. <CR> stands for Carriage Return. For now, just press [RETURN] to browse through the whole library.

[72637,225]
SHIPS.XMO   12-May-86 12370(5280)
Accesses: 15
Keywords: KOALA STARTREK
TOUCHTABLET
A portrait of the USS
Enterprise and the USS Excelsior
Drawn with AtariArtist and
further edited with RAMBRANDT.
- Pat Lancaster
[72637,225]
Enter command, N for next file
or <CR> for disposition menu: **N**

We'll skip this one and go on to the next file in this library by typing **N**.

[75776,1410]
BIGLIF.DOC   12-May-86 6020
Accesses: 13
Keywords: CELLULAR LIFE GRAPHICS
DEMO COMPILED BASIC 1986
This online readable file is formated to
print on 80col 8 1/2x11 paper. The
doc file for BIGLIFE.OBJ, a
Conways Life optimized for speed.
Gary Holder
75776,1410
Enter command, N for next file
or <CR> for disposition menu:

Let's download this one. Press [RETURN] to get to the Disposition Menu—the download menu.

DISPOSITION
1 (REA)   Read this file
2 (DOW)   Download this file
3 (T)   Top Data Library Menu
Enter choice or <CR> for next: **2**

We type **2**. This tells CompuServe that we want to download this file.

Transfer protocols available -
1 XMODEM (MODEM7) protocol
2 CompuServe 'B' protocol
3 CompuServe 'A' protocol
4 DC2/DC4 CAPTURE protocol
0 Abort transfer request
Enter choice: **1**

There are several customary protocols (formats) used to transfer and check for errors in files. The most

BOOKS ABOUT DATABASES

What is an online database?

An online database is nothing more than an electronic library. Instead of storing information on paper, it's stored in huge mainframe computers. A membership fee and password are the library card you need to "check this information out" and send it to your computer where you can browse through it, store it to disk, or make a paper printout. It's expensive, but unlike a library, you can keep it forever. No fines, no overdue notices.

Many databases are available within a larger services. CompuServe and Dow Jones News Retrieval, for example, are online libraries. You can think of the databases within them as electronic encyclopedias. Books about databases are paperbound information sources that lead you to electronic information services where you can, in turn, find more information about information. Here are a few.

OMNI ONLINE DATABASE DIRECTORY
Mike Edelhart and
Owen Davies
Macmillan Publishing, New York
1983
$10.95, 292 pages

Already outdated but well-indexed book takes the "cutting edge" approach with opinionated reviews of 1,000 online databases.

COMPUTER DATA AND DATABASE SOURCE BOOK
by Matthew Lesko
Avon Books, New York
$14.95, 900 pages.

A wealth of objective information about databases available within larger services such as The Source, DIALOG, CompuServe and Dow Jones. The information itself is even available online through NewsNet, an information service devoted exclusively to business newsletters, ($24 an hour at 300 baud during prime time) by calling (800) 345-1301.

ANSWERS ONLINE
by Barbara Newlin
Osborne McGraw-Hill
Berkeley, CA
$16.95, 373 pages

Includes valuable tutorials on how to sign up and search for information on a number of online services.

ONLINE ACCESS GUIDE
53 West Jackson Blvd. Suite 1750
Chicago, IL 60604
(312) 922-9292
$24.95 yearly

Online services are growing at the rate of 500 every six months. This quarterly magazine promises current listings of over 4,000 services.

popular is XMODEM, sometimes called MODEM7. Most modem programs, including the one we're using, Express, are compatible with it. See your terminal software manual to determine which protocol you need. For more details about these protocols, see page 20 of the Forums section in your CompuServe manual.

```
Starting XMODEM transfer
Enter a carriage return when
transfer is complete
```

RETURN TO EXPRESS

Remember your telecommunications program? It's time to return to it again. (By the way, telecommunications programs are often called modem programs or terminal programs.) You are still logged onto CompuServe and paying for connect time, but you are simultaneously accessing your Atari microcomputer's memory.

Tell your modem program to download a file. With most programs, you have to press one of the console keys [SELECT], [OPTION] or [START] to display your modem program's Function Menu. (With Express, we press the [SELECT] key). Take the terminal software disk out of the disk drive and insert a formatted disk with enough space to save the file we're downloading.

On the terminal program's menu, tell the Atari to download a file using XMODEM. (With Express, we press **R**.) The terminal program should then ask you to type in a filename for the file you're downloading. When your modem program receives your file, it will automatically SAVE it to disk using the filename you typed in. You do *not* need to use the same filename that CompuServe gave it.

CompuServe lets you know when the download is finished. Press [RETURN] to go back to communicating with the CompuServe computers. If you want to log off CompuServe, type **OFF** or **BYE** at the ! prompt and you'll return to your modem program. Now you can start your computer again and test out the downloaded file. We downloaded a graphics file, so we'll need to boot a graphics program before we can run it.

This is the fun part—it's like unwrapping a birthday gift. Sometimes you'll find a real gem, like Fuji Boink—the 8-bit Atari version of the Amiga bouncing ball demo. Sometimes you'll find some real junk. Charlie and I downloaded what sounded like a very appealing Beethoven symphony, only to find a buggy program that never ran. But some of the finest software around is in the public domain. The free flow of information and the romance of the hacker ethic still thrive in the world of online communications.

The best boards in life are free

If a commercial online information service is like a university, a bulletin board is like a classroom. You enter and see messages pinned up on the bulletin boards by people who have been there before. You read what's there, post your own messages and then leave. Each time you walk in, there's more writing on the board.

A bulletin board system (BBS) is a miniature version of CompuServe or Delphi. When you log on, instead of communicating with a huge mainframe, you're talking to another microcomputer. You can call any BBS that's compatible with your modem's baud rate. However, although an Atari computer can communicate with a Commodore bulletin board, you won't be able to run Commmodore software that you download.

Bulletin boards emerge and die quickly. Some may only be available during certain hours, or to certain modems and baud rates. Others may ask you to register or charge a small fee before you can use them. And you must always pay local or long distance phone charges too. While you try to connect, you may have to endure half an hour of busy signals. Since most bulletin boards are "single-user" systems, only one person can call at a time.

For this reason, BBS's are not as "patient" as CompuServe. Most sysops (system operators—the folks who run bulletin boards) want you to hurry. An impatient BBS will log you off if you're too slow.

If you have any problems you can use the YELL command to call the sysop. Don't be shy. Just because sysops have names like "Dragon-Master" or "Rambo" doesn't mean they'll breathe fire if you need help. Sysops are usually friendly, normal people having fun with their alter egos. They wouldn't invite you if they didn't want to talk. Some even keep a "chat bell" next to their beds to wake them up in the middle of the night if someone wants to chat online.

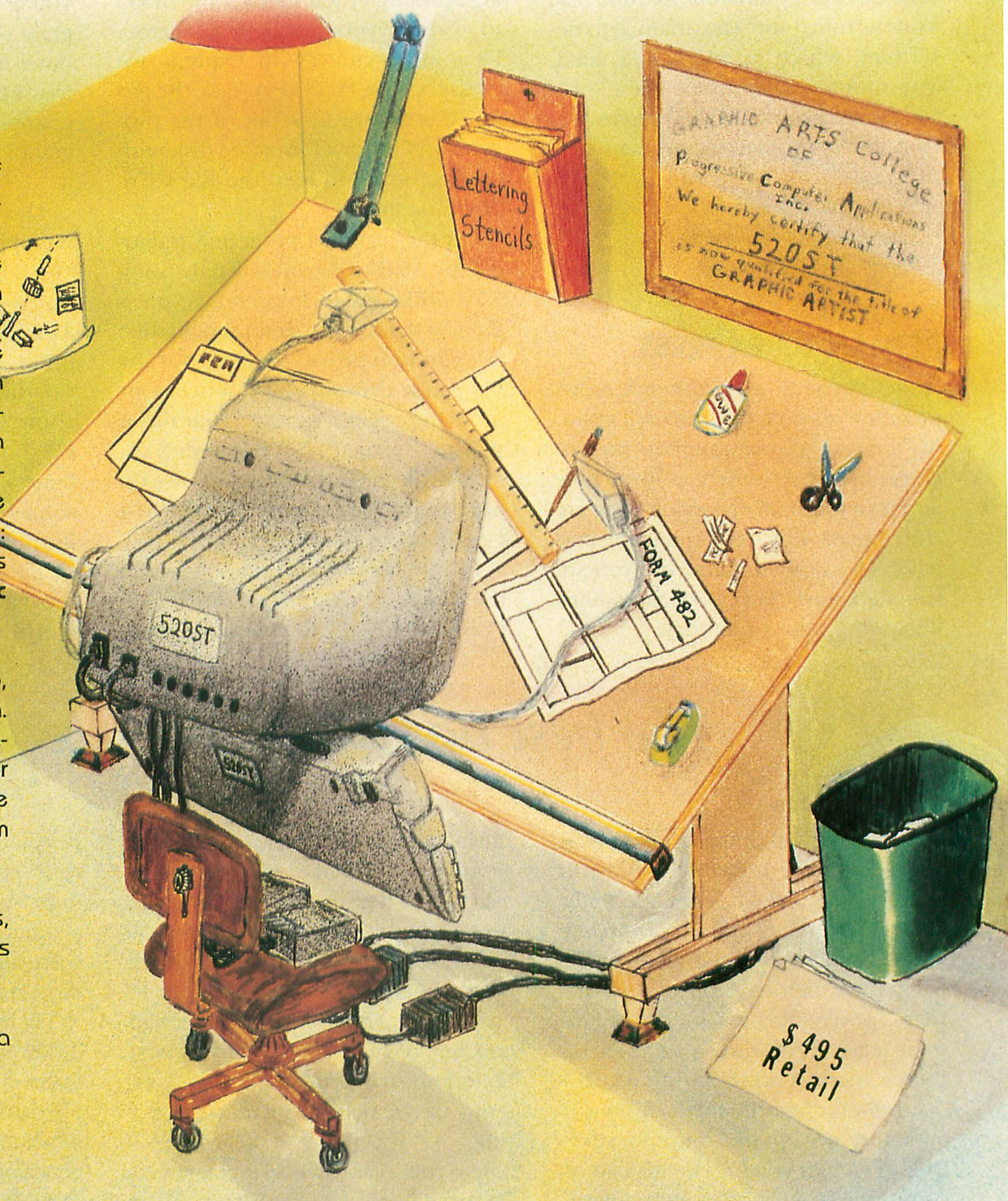
There are currently more than 2,000 bulletin boards in the United States. They include Dial-Your-Match for daters, boards for pilots, parents, peace activists, adventure gamers, genealogists and rock musicians. Even Atari Corp. has a 24-hour bulletin board at (408) 745-5308.

Special boards, known as FIDO boards, can link these smaller networks together. Every morning between 1 and 2 am, all the FIDO boards call each other to transfer messages. You can leave a message on a FIDO in your home town, and the next day, it reaches a board across the nation.

continued on page 25

Graphic Arts

The Next Step in the Evolution of Software



Imagine combining the functions of Computer Aided Design (CAD), Business Graphics, free-hand drawing, and typesetting programs into one package. Include functions of a simple spreadsheet for data manipulation. Add abilities of a simple word processor for text annotation in various fonts, sizes, and rotations. Mix all these features into a single package instead of "integrating" separate packages. The result is a new breed of software: **Graphic Arts.** The only graphic arts program available: **The Graphic Artist.**

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(301) 340-8398

★Language $245 additional

by NAT FRIEDLAND, **Antic** Editor

ANTIC ONLINE SURVEY RESULTS

Over 1,000 ANTIC ONLINE users voted for their favorite modems and telecommunications software during March and April of this year. The results are summarized below:

MODEMS

Although 47 different modem models were named, none below the top-ranked eight earned more than a handful of votes. Some 61% of the votes went to just the top four modems—all of which are the familiar direct-connect 300 baud modems from Atari and MPP (now Supra) which do not require any special interface unit.

The most popular modem, the Atari 1030, earned 35% of the total votes—as much as the next five runner-ups combined. The simple, inexpensive 1030 got ratings of 5 (highest level) for reliability and value.

The "son of" the 1030, the Atari XM301, came in second with 13% of the votes. It received three ratings of 5, for reliability, value and ease of use.

The two MPP direct-connect modems received a total of 14%—with the MPP 1000-E accounting for 9% and the earlier MPP 1000-C getting 5%.

The Hayes 1200 baud Smartmodem was in fifth place. This industry-standard modem won a top rating in five of the seven survey categories, falling below the 5 level only in price value and automatic features. Incidentally, the Hayes 300 baud model was in seventh place and the Hayes 2400 baud model was in the top 20.

The no-frills 300 baud Anchor Volksmodem held sixth place with 3% of the vote and top-level ratings in four categories.

MODEM SOFTWARE

Choice of telecommunications software depends on what modem you are using, of course. So with the Atari 1030 Modem such a dominant hardware choice, it's not surprising that software for the 1030 and other direct-connect modems led the pack of 38 products.

Far in the lead was 1030 Express, with 21% of the votes. The public domain favorite by SIG*Atari sysop Keith Ledbetter earned 32 out of a possible 35 points in quality ratings. Ledbetter's companion public domain program, 850 Express (for non-direct-connect modems such as the Hayes) held sixth place with 5% of the votes and a perfect 35 rating!

HomeTerm, from Batteries Included's HomePak, was in second place with 12% of the votes and an overall rating of 30. Smart Terminal software, various versions of which are included with MPP (now Supra) direct-connect modems, came in third with 10%.

XE-Term, the software included with the Atari XM301 Modem, was in fourth place with 6% and a 30-point rating. Quantum Microsystems' ST Talk, for the Atari ST (28 points), and the familiar public domain TSCOPE (25 points) tied for fifth with 5% each.

In seventh place with a 29-point quality rating and 4.7% of the votes was Pro*Term, a type-in listing from the August, 1985 issue of **Antic**. Backtalk from the Antic Catalog came in eighth with 28 points and 4% of the votes. PC/Intercomm, an ST program from Mark of the Unicorn, was in ninth place with 32 points and 3% of the votes. Few of the remaining software packages earned more than one or two ballots.

Modem Survey
continued on page 19

Atari user's Top 10 communications tools

Subscribe Today!

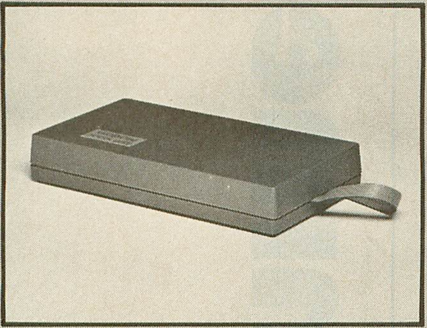
- ANTIC brings you FREE type-in program listings for fascinating and useful programs every month.
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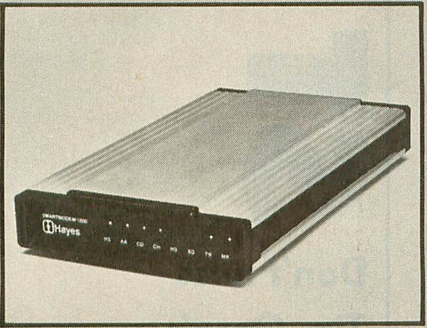
Here's how to order →

M O D E M S



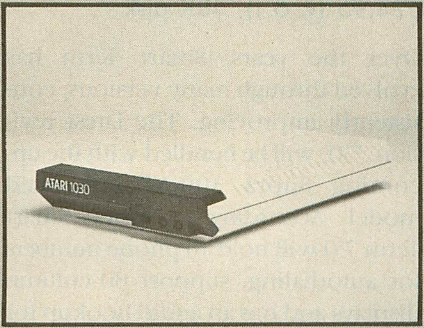
SUPRA 300-AT
(MPP 1000-E)
Supra Corporation
1133 Commercial Way
Albany, OR 97321
(503) 967-9075
$49.95

The 300 baud, direct-connect modem formerly known as the MPP 1000-E is now being sold as the Supra 300-AT. It comes with Smart Term software that allows uploading, downloading, auto-dialing, auto-answer and XMODEM protocol. Scheduled for release by the time you read this is a new, enhanced Supra 300-AT that comes with Smart Term version 7.0 and can also work with Supra's more advanced Omega software.



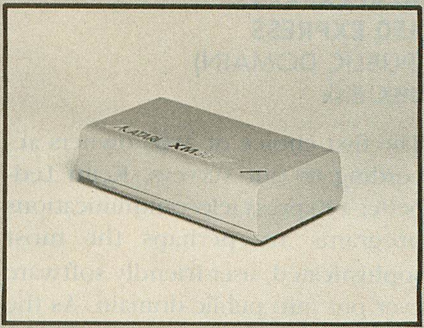
HAYES SMARTMODEM 1200
Hayes Microcomputer Products
5835 Peachtree Corner East
Norcross, GA 30092
(404) 449-8791
(8-bit Ataris require 850 interface)
$599

Solidly constructed, full-featured Hayes modems are the standard that the rest of the industry is judged against. And the Hayes command set is the standard that most third-party telecommunications software is written for. The Hayes Smartmodem 1200 adjusts automatically between 300 or 1200 baud. It can switch between voice and data transmission on a single call. Features include auto-answer, auto-dial and redial, built-in speaker, outstanding documentation. It can communicate with complex office PBX systems, with overseas modems that use the CCITT-V22 format, or with the bulletin board across town.



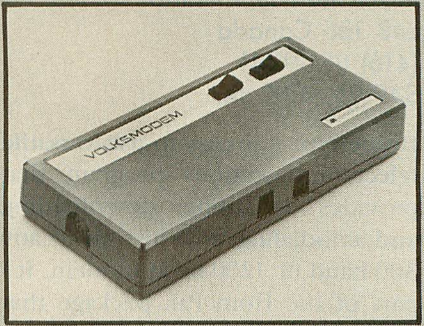
ATARI 1030
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94086
(408) 745-2000
$49.95 (varies)

Although no longer manufactured, the dependable 300 baud, direct-connect Atari 1030 is still going strong. New units remain available—check the mail-order ads in **Antic**. Most users today bypass the 1030's built-in software (which doesn't even require a disk drive) in favor of a wide variety of third-party software that allows this simple modem to upload, download, auto-dial and even operate a bulletin board.



ATARI XM301
$49.95

The worthy successor to the 1030, Atari's XM301, builds a number of advanced features directly into the inexpensive 300 baud direct-connect format. No larger than a deck of cards, the XM301 has auto-dial and auto-answer built in, and doesn't need an external power supply. You get a 49-page manual and some $270 worth of online discount offers. The included XE-Term software is an outstanding value in itself.



VOLKSMODEM 10
Anchor Automation
6913 Valjean Avenue
Van Nuys, CA 91406
(818) 997-7758
$79.95

This 300 baud, direct-connect modem is a simple, reliable workhorse that plugs into joystick port 2. Not to be confused with the Hayes-compatible 1200 baud non-direct-connect Volksmodem 12 ($299) Coming soon is the Volksmodem 520 for Atari STs.

Photography by David Barnum

COMMUNICATIONS SOFTWARE

1030 EXPRESS,
850 EXPRESS
(PUBLIC DOMAIN)
48K disk

The first choice of Atari owners according to our surveys, Keith Ledbetter's Express telecommunications programs are perhaps the most sophisticated, user-friendly software ever put into public domain. As the titles indicate, 1030 Express is for the Atari 1030 and XM301 direct-connect modems, while 850 Express supports Hayes-compatibles and other standard modems that require an RS-232 serial interface such as the Atari 850. One online source for Express is Data Library 2 on CompuServe's 8-bit SIG*Atari section—type BRO/KEY EXPRESS for instructions. Also Antic Catalog's 1030/XM301 disk ($10, PD0025) includes 1030 Express.

HOME TERM
Batteries Included
30 Mural Street
Richmond Hill, Ontario
L4B 1B5 Canada
(416) 881-9941
$49.95, 48K disk

HomeTerm is an easy-to-use, versatile telecommunications program that provides uploading, downloading and autodialing with just about any 300 baud or 1200 baud modem. It's part of the HomePak package that also includes a simple word processor and file manager. An ST version of HomePak is on the way from Batteries Included.

TSCOPE
(PUBLIC DOMAIN)
16K disk

TSCOPE, by Joe Miller, is the standard public domain program for uploading and downloading CompuServe SIG*Atari files and VIDTEX pictures. This program works with Atari 1030/XM301 direct-connect modems as well as standard 850-compatible modems. TSCOPE can be downloaded from Data Library 2 on CompuServe's 8-bit SIG*Atari section—type BRO/KEY TSCOPE for instructions. It's also included on Antic Catalog's 1030/XM301 disk ($10, PD0025).

SMART TERM
Supra Corporation
1133 Commercial Way
Albany, OR 97321
(503) 967-9075
Included with MPP 1000-E
$24.95 (v. 6.1), 48K disk

Over the years, Smart Term has evolved through many versions, consistently improving. The latest revision, 7.0, will be bundled with the upcoming Supra 300-AT enhanced model. According to Supra, Smart Term 7.0 will hold 10 phone numbers for autodialing, support 80-column displays and has an audio hookup for TV speakers. It handles uploads, downloads, auto-dial, auto-answer, XMODEM, pulse/tone dialing.

XE-TERM
Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94086
(408) 745-2000
Included with Atari XM301
32K disk

Antic reviewer Matt Ratcliff (March, 1986) called XE-Term "superb." Easily operated via onscreen menu boxes, XE-Term supports the full 128K memory of the Atari 130XE computer. It works with XMODEM, AMODEM, captures information and toggles between ASCII and ATASCII. XE-Term stores five phone numbers and one log-on macro sequence.

BAAUG SPEAKS OUT

by GIGI BISSON,
Antic Assistant Editor



Photography by Erik Weber

BAAUG members show their modems for the Antic camera.

It might seem like a crazy idea: Give Atari users a chance to tell the industry what they really think about telecommunications products. Crazier still, put those comments into print.

The Antic editorial staff paid a visit to the local Bay Area Atari Users Group (BAAUG), one of the nation's largest, and let them tell us what's wrong and right with their modems. About 100 Atari owners, some with wives, kids and even modems in tow, showed up for the meeting in an elementary school cafeteria in the heart of Northern California's Silicon Valley.

We braced ourselves for some brutally honest comments. But the Atari users at BAAUG are quite happy, even ecstatic about their telecommunications equipment. They seem to fall into two extremes: either they own first-rate 1200 baud systems and subscribe to several online sevices, or they log onto local bulletin boards with public domain software and discontinued modems purchased at computer swap meets.

They are willing to pay premium prices for premium software and hardware, but if they didn't get power for the price, the verbal slings and arrows flew through that cafeteria like peas in a food fight. On the other hand, almost any problem could be tolerated if a modem or communications software was inexpensive enough.

(See the Modem and Software Source List elsewhere in this issue for additional details about the most widely used products mentioned in this article.—ANTIC ED)

SOFTWARE

These Atari owners say many free public domain telecommunications programs are better than the ones sold by commercial software companies. Owners of direct-connect modems (modems designed specifically for the Atari computer and not requiring a separate interface) usually prefer public domain programs over the software supplied with their modems.

We almost got tired of listening to members extolling the virtues of 1030 Express, a public domain program written by Keith Ledbetter, a system operator (sysop) on CompuServe's SIG*Atari They went on and on: "1030 Express is the best piece of software I've ever found." "I wish the programmer would write one for the 520ST." "The auto-dialer is simple to use, it saves three macros and there's no need to manually enter a password." 1030 Express works only with the Atari 1030 and XM301 direct-connect modems. Ledbetter's newer version, 850 Express, is compatible with the Hayes and other non-direct connect modems that utilize the Atari 850 interface.

AMODEM is the most frequently used program, but 1030 Express is clearly the best-loved. Users of the six different versions of AMODEM like the macros, ease of use and the way it supports ASCII and XMODEM protocols. But they complain about poor documentation and problems uploading with AMODEM's small buffer space. XMODEM users say the public domain program is hard to use. Sur-

prisingly, none used the public domain program TSCOPE.

HomeTerm, from Batteries Included's HomePak, is the most popular commercial 8-bit program. "It's a good, dependable program. I like the macros," one user says. But another chimes in, "My macros didn't work at all." "Hometerm is easy to use, clear, menu driven and forgiving of mistakes," says Sue Tempey.

For the ST, the leaders are less clear. One user says ST Talk is the only commercial program that works. Most agree Mark of the Unicorn's PC/Intercomm "works great, but at $124 it should." ST Term by Matthew Singer of Commnet Systems software was the second most popular.

MODEMS

A big surprise is the ongoing popularity of the discontinued Atari 1030 modem (price varies). BAAUG had few harsh words for this limited, but inexpensive peripheral.

Second most popular for both 8-bit and ST users is the industry-standard Hayes Smartmodem ($599 for 300/1200 baud).

About half of the group at BAAUG own 1200 baud modems—and most of the remaining 300 baud owners wish they had them or plan to purchase them. "I used to own a Hayes 300 Smartmodem, but after discovering the Hayes 1200 baud modem, I'd never go back again, ever. I spend major portions of my life in front of my computer. That's too much time to waste with 300 baud." says one owner, echoing the sentiments of many.

It is sometimes difficult to distinguish the modem's performance from that of the software. In fact, problems blamed on modems at the meeting often seem to be software compatibility problems. But a good software package can transform a mediocre modem into an online powerhouse. For example, an unmodified Atari 1030 can't auto-answer, and when used with its built-in terminal program it can't upload and download files either. However with the AMODEM 7.2 or 1030 Express program, it produces reliable file transfers.

ATARI 1030

The Atari 1030, purchased for anywhere between $40 and $150, was by far the most popular modem at the BAAUG meeting. "The 1030 is reliable, but it's only 300 baud and it can't run our BBS," says Kathy Standifird. On the other hand, a volunteer sysop (system operator) at the Atari BBS says 90% of Atari Corp's own bulletin board is run with an Atari 1030 modem and 1030 Express. The Atari BBS also offers 1030 Express for downloading. "That's great. How do I download it without a terminal program?" someone asked. This is the Catch-22 of free downloadable terminal software. You can, however, obtain a copy from your local users group or purchase it for $10 from the Antic Catalog.



Polling modem users at BAAUG meeting.

ATARI 835 ACOUSTIC

A real price buster, the old 300 baud Atari 835 was purchased within the rock bottom range of $10 to $19. "It's cheap. It does the job adequately when paired with AMODEM 7.1. But it's an acoustic modem so it won't auto-dial and it's awkward to use," owners say.

Why use an acoustic modem? Loretta Colbourn responded: "It's reliable, and I bought it for only $24." The only problem was software. "It's hard to find," she says.

This prompted a user group discussion on modular telephone plugs vs. four-pin connectors. Acoustic modems are good to use if your telephone still has an old-fashioned four-prong wall jack—you simply rest the telephone handset in a pair of rubber cups atop the modem. The more advanced "smart" modems plug directly into your phone outlet and require a modular plug. One member offers this hint: "I just unscrew the phone mouthpiece, hook on the two modem plugs with alligator clips and it works great." "I don't know about you," another BAAUG member jokes, "But I did something like that as a kid and almost got arrested." Another member suggests a device called a Blackjack that allows you to connect a modem's modular phone cord to a non-modular phone jack.

ATARI XM301

The users with Atari's new XM301 modems say it's a good value for the price ($49.95). They like the ease of use, the fact that it's a direct-connect modem and has an auto-dial feature on the software it comes with. The only gripe is that the XM301 must be the last peripheral in a "daisy chain." But overall, as Ron Frey says, "It's small, it's cheap and it works."

MPP 1000-E

The best features of Supra Corp.'s MPP 1000-E direct-connect 300 baud modem are its low price, auto-dial and redial capabilities. However, users complain that it lacks a speaker, so you can't tell if you've got a busy signal, a ring, or a voice on the line. Ron Rautenberg likes the MPP because it's "small and neat looking." Some owners say the built-in SmartTerm software was the MPP's worst feature. Raymond Santiago found SmartTerm easy to use, but says the software buffer is too small and has some problems with file transfer errors when using the MPP with his Percom disk drive. In any case, the price is right—in the $60 to $139 range.

continued on next page

SIGNALMAN MARK XII

"It runs AMODEM 5.0, but won't run with 850 Express or BBCS (Bulletin Board Construction Set). It's cheap, though," says Wendell Cotton who picked up his Anchor Signalman for $25 at a flea market. Others paid up to $99 for this 300/1200 baud modem.

HAYES SMARTMODEMS

You get what you pay for. Hayes Smartmodems, purchased at prices ranging from $199 to $300 for a 300 baud model and $300 to $595 for 1200 baud, were the second most popular brand. Indeed, the only complaint about Hayes modems was the price.

"Compatible with everything," says John Schreier, who uses it with Mark of the Unicorn's PC/Intercomm software on his 520ST. Another plus was the standard RS-232 interface, allowing people to use the same Hayes modem with both their Atari 800 and 520ST computers.

"The Hayes is reliable and has auto-dial and auto-answer capability with all good software," says Richard Anderson, who uses his 130XE for electronic banking and software uploads and downloads. "It's easy to use, has a built-in speaker, trim styling and good customer support from Hayes," says Mike Morrow, who uses it with HomeTerm on his 800XL and Chat on his 520ST. As for the 2400 baud Hayes, one user says he hasn't had any problems with a Hayes 2400 baud model he paid $400 for at a computer swap meet, saving $295 on the retail price.

HAYES-COMPATIBLE MODEMS

"Not all Hayes-Compatibles are Hayes compatible. I've had many problems," says Greg Humphrey, a marketing manager for Haba Corp. attending the BAAUG meeting that night.

A Hayes-compatible modem is supposed to be able to use communications software packages designed for a Hayes and utilize the same commands. It's also supposed to be "smart"—able to dial automatically and store phone numbers. Full compatibility means the modem can utilize *all* the automatic features of a communications software product designed for the Hayes. Semi-compatibility means you can connect successfully only after dialing each phone number manually, and may not be able to utilize some of the software's other features. Most Hayes-compatible modems are compatible with both the ST and 8-bit Ataris when supplied with the appropriate interface and software.

VOLKSMODEM 12

Living up to its Volkswagen-type name, the Hayes-compatible Volksmodem 12 from Anchor Automation got raves for its reliability and simplicity. "I like it, it's real cheap," says Corey Cole who paid $150 and uses it with the Flash terminal program on his ST. Norman Maxwell, who paid $79 for his Volksmodem, uses it to control his robot with a 520ST and the ST Talk program. This non-direct connect modem is also compatible with the 8-bit Ataris.

RACAL-VADIC

Three members use the Racal-Vadic 1200 modem with the 520ST or the Atari 800. The price ranged from $249 to a whopping $900 for a variable-speed Racal-Vadic 1545 purchased eight years ago. No complaints here. Users say the Racal-Vadic is "smart," fast and supported by a good company.

U.S. ROBOTICS

The 1200 baud, Hayes semi-compatible U.S. Robotics/Password modem is the modem of choice for BAAUG president Frank Nagle who uses it with his 520ST and PC/Intercomm software. The $300 modem lacks a volume control. Pluses are auto-dial and pulse/tone dial options. AMODEM 4.9 software supports all of its features.

BIZCOMP INTELLIMODEM

'I like the line-quality lights so you don't waste time downloading junk," says Glen Elliott, who uses his Bizcomp Intellimodem with HomeTerm software. The 1200 baud Hayes-compatible modem manufactured by Business Computer Corp. of Sunnyvale, CA retails for $400. "But it's not truly Hayes-compatible," complains Mark Blomenkamp, who uses it with AMODEM software.

PROMETHEUS 1200

Four have Prometheus Promodems, purchased for anywhere between $299 and $380. The best features are auto-dial and auto-redial abilities, phone directories, adjustable baud rate and a clock display. However, one user says the clock must be reset every time it's powered up. Another, Steve Heacock, says the Prometheus has different status numbers than the Hayes, although it's the same command set. Other drawbacks reported: it won't work with Bulletin Board Construction Set and gets very hot after being on for only 15-20 minutes.

AVATEX

E+E Datacom's Avatex modem is 95% Hayes compatible. "Which 5% are you missing?" someone wondered out loud. The 300/1200 baud model retails for $199.95, but it has recently become available for users group multi-unit purchases at under $100. The Avatex is advertised as being fully compatible with HomeTerm, but is apparently only partially compatible with DiskLink and TSCOPE software. Scott Tretyl, who purchased his Avatex for $100, likes the auto-dial capability when he uses it with AMODEM 7.2, but laments it lacks a speaker.

THE IDEAL MODEM

In all, users at the meeting says that the ultimate modem and software combination would be a Hayes-compatible auto-answer, auto-dial modem compatible with a variety of terminal software and computer systems. And all this for a price under $200. The communications software should use macros, store 10 phone numbers, support graphics and above all, be invisible to the user. Says BAAUG member Jon Rogers, "I want to communicate, not manipulate software."

Manufacturers, are you listening?

continued from page 15

Beyond this are multi-user regional networks—larger than a BBS, smaller than CompuServe. One is The Well, a Northern California network operated by the publishers of the *Whole Earth Software Review*. ($8 a month plus $2 an hour, (415) 332-6106.)

LETS CALL A BBS

We'll call BUG—the Boise Atari Users Group BBS—because they have a list of over 1,000 BBS telephone numbers to browse through or download. If you don't live in Boise, Idaho, you'll need to pay a long distance telephone charge to call the BUG BBS—but, unlike CompuServe or any other multi-user commercial online information service—you will not be billed an hourly fee or "connect charge."

First "tell" your modem program to dial BUG at (208) 383-9547. (Type 2083839547—no dashes) With Express 850, we type E.

If your modem has a speaker, you'll hear it dial. When you finally connect (be patient), press [RETURN]. "Garbage" characters may appear on screen as the modem tries to determine the baud rate of the BBS—we got loads of them while researching this article.

Then select the right Atari mode from your modem program's software menu. Go to your software's Function Menu and choose ATASCII, the mode that the BUG BBS requires. Leave the program menu and press [RETURN]. The title screen appears:

WELCOME TO BUG

Most bulletin boards use commands that are very similar to those on CompuServe. To stop scrolling, hold down the [CONTROL] key while you type S. To start again, it's [CONTROL] Q. Type [CONTROL] X to quit. (Boldface type represents what *you* type in.)

Enter your Name >**Charlie Jackson**
From City,State >**San Francisco, CA**
You are CHARLIE JACKSON
Calling from SAN FRANCISCO, CA
CORRECT <Y/N>**Y**
Logging caller No. 20946 to disk...
-On Thursday 05/15/86 13:30:25 MDT
(^ =CTRL) ^ S PAUSE, ^ Q RESUME, ^ X QUIT
→ATARI BBS LIST IN 'O' SECTION←

This is what we want! BUG will display current notes, bulletins & greeting messages. Then it will ask you:

First time on this BBS?
<Y/N>**Y**

If this is your first visit to BUG, type Y. Now we see a detailed introduction, along with some helpful hints. After this scrolls past, we're asked to make our selection:

Selection...(?=Menu) →?

(To look at the menu, press the ? key.)

ONE MOMENT CHARLIE JACKSON,
GETTING FILE:
MENU.DAT

This is the BUG command menu:

(A)TASCII/ASCII switch	(B)ulletins
(C)allers file	(D)ownload
(F)iles for download	(G)oodby
(H)elp file	(I)nformation
(L)inefeed on/off	(M)essage base
(N)ew user file	(O)ther files
(P)rivate mail	(T)ime
(U)pload a file	(V)alley users
(W)elcome sign-on	(X)pert user
(Y)ell for Sysop	(?)-This menu

Selection...(?=Menu) →**O**

Choose the O option for the BBSLIST. Now you'll see a directory of files you can download from the O section:

DIRECTORY— DOUBLE DENSITY SECTORS
COMDEX3 031
BBSLIST 078
ATRIBITS 013
CESWRAP 029
BBS1030 008
ONEMEGST 050
<RETURN>=EXIT
FILE NAME=>**BBSLIST**

Type in BBSLIST, the name of the the file we want to download. Then, BUG asks us:

Christensen XMODEM protocol? <Y/N>**Y**

(Nearly every modem program is able to use this method of downloading files. XMODEM protocol is desirable because it recognizes and corrects any "noise" or interference on the telephone line.)

READY TO SEND BBSLIST.TXT
^ X TO CANCEL.

BUG is waiting to send you the file—but it won't wait long. Quickly, go back to your modem software's Function Menu.

BACK TO EXPRESS

This procedure varies between modem programs, but usually it involves three things:

1. Call up your modem program menu. (With Express 850, we press the [SELECT] key.)
2. From the menu, choose the command to receive a file using XMODEM. (With Express, we type R.)
3. Type in a filename for your computer to use when it begins to store the incoming data.
4. [RETURN].

If you're using Express 850, the download will begin automatically. Make sure you have a formatted disk in your drive to save the program to. (Other programs, such as HomeTerm and BackTalk require you to press a console key to begin a file transfer.)

As Express 850 downloads the file, words will flash by on the computer screen. On the top of the screen, where BUFFER: appears, the number should be increasing as the file is sent.

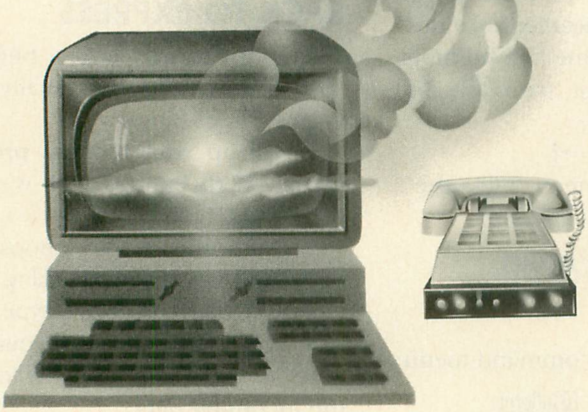
After your Atari has received the file, it automatically stores it on disk using the filename you typed in earlier, and brings you:

BACK TO BUG

To exit BUG, type G (goodbye) at the Selection... (?=Menu)→ prompt. Turn off your computer, boot up your word processor (such as PaperClip or AtariWriter) and read your list of 1,000 bulletin boards. That should keep you busy for awhile...

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The Source	X	X	no	X	X	X	$49.95	$10.00	$8.40	$10.80

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4. At the U#= prompt, enter **XJM11947,GENIE** then RETURN.

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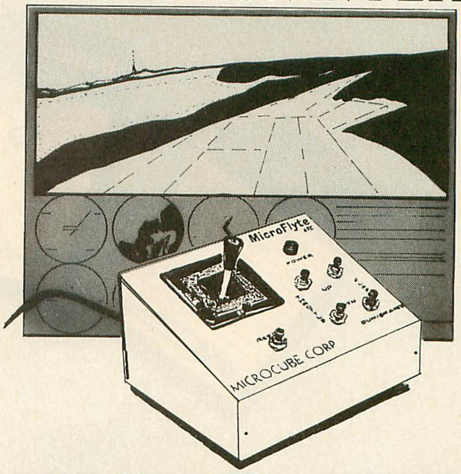
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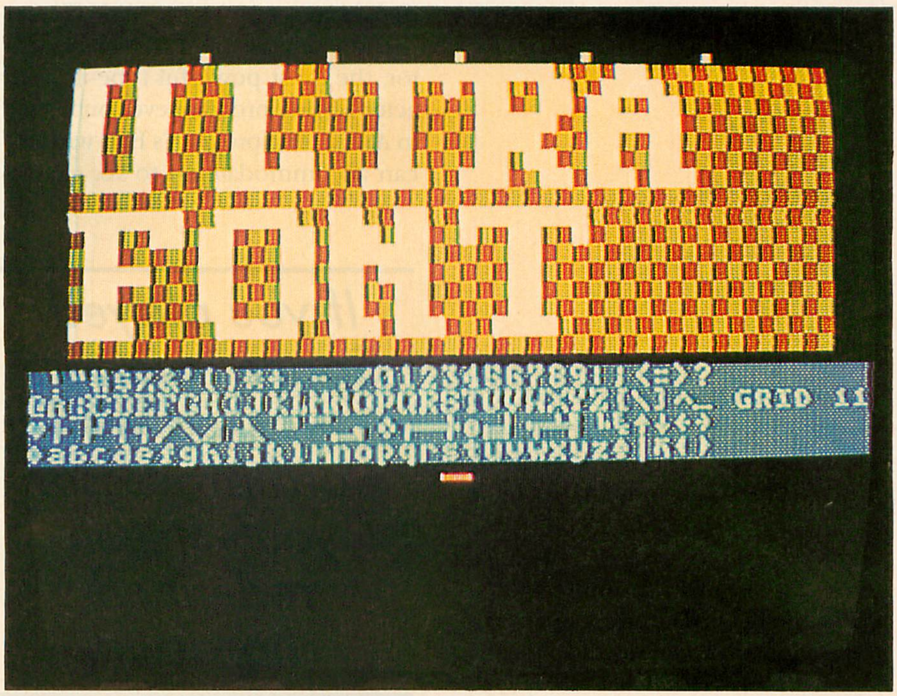
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ULTRAFONT

Ultimate type-in character editor

Program by STEVEN LEE
Article by CHARLES JACKSON, **Antic** Program Editor



UltraFont may be the most powerful character set editor ever published as an Atari type-in program. It lets you create, display and manipulate character sets, or "fonts"—as many as six characters at a time—in any of five graphics modes. This is an all machine-language program that you type in as a self-converting BASIC data file. (Antic Disk subscribers will find a bonus of several character fonts on this month's disk.) UltraFont runs on all 8-bit Atari computers with at least 24K memory, disk or cassette. A joystick is required.

If you've ever played Space Invaders, worked with a word processor such as PaperClip, or seen **Antic**'s *Color The Cover* contest winner (June, 1985), you've seen redefined character sets (fonts). Using a redefined character set is very similar to using a different typeface on your printer.

A character set is a list of instructions which tells your computer how to draw characters. For example, the numbers 0, 24, 60, 102, 102, 126, 102, 0 tell the computer how to form the letter A. These numbers, when written in binary notation and stacked one on top of the other, form a "stencil" of the letter A:

0	00000000
24	00011000
60	00111100
102	01100110
102	01100110
126	01111110
102	01100110
0	00000000

continued on next page

If we place our stencil over a blank video screen, and turn on only pixels (picture elements) underneath a number 1, our image (bitmap) looks like this:

```
0
24        **
60       ****
102    **    **
102    **    **
126    ******
102    **    **
0
```

We can alter the appearance of our letter A by altering the instructions the computer uses to draw it. If we changed all the 102's to 126's, for example, the A would look more like a house:

```
0
24        **
60       ****
126    ******
126    ******
126    ******
126    ******
0
```

If we change our A to resemble a spaceship, we have the beginnings of a Space Invaders game. If we redefine the characters A, B and C to resemble a man beginning to take a step, a man in mid-step, and a man completing a step, we can create a simple animation sequence. Of course, our animation sequence could not display any words which used the letters A, B, or C—in any text message, these characters would also appear as stick figures.

As you might expect, creating and using redefined character sets from scratch is not all that easy. The Atari's character set starts at memory location 57344 ($E000) and continues through 58367 ($E3FF). This 1024-byte block of memory is permanently carved in ROM, and cannot be changed.

The trick here is to copy the *entire* character set from ROM into an appropriate place in RAM, where we can alter it. Then, we tell the computer to use our RAM-based character set, instead of the one in ROM. Once in RAM, we can redefine any or all of the 128 non-inverse characters.

The computer uses the non-inverse character set as a template for creating the inverse set. Thus, if you redefine a capital M, your inverse capital M also gets redefined.

You can design a redefined character set with a pencil, a pocket calculator, and several reams of graph paper. This is known as "doing it the hard way." Fortunately, there are many speedy programs known as "character font editors" that help you design your own redefined character sets, show you what your completed character set will look like, perform the necessary calculations and SAVE the set to a nine-sector disk file.

UltraFont is a full-featured font editor, the most powerful type-in character editing program ever published in **Antic**. The program's Edit window can accommodate up to *six* characters and works with GRAPHICS 0, 1, 2, 12 and 13 (ANTIC modes 2, 6, 7, 4 and 5, respectively).

If you played Space Invaders or worked with a word processor, you've seen redefined characters

TYPING AND LOADING

Type in Listing 1, CHARFONT.BAS, check it with TYPO II, and SAVE a copy before you RUN it. When RUN, the program asks whether you want to create a [D]isk version or a [C]assette version of the program. Choose [C] and the program will create a machine-language boot tape. Choose [D] and it will create a 55-sector object file called CHARFONT.OBJ. If you're using a disk system, be sure your disk has at least 55 free sectors. Be patient; CHARFONT.BAS requires about six minutes to create the new file.

Antic Disk subscribers will find a copy of CHARFONT.OBJ on the monthly disk. As a bonus, you'll also get several complete sample character fonts.

Cassette owners: Once you've created the object file, rewind the tape and press PLAY on your program recorder. Next, hold down the computer's [START] key while turning on the computer. (XL/XE owners should also hold down the [OPTION] key.) Press any key and the program should load and run.

Disk owners have two options: First, remove all cartridges, insert a disk with the DOS.SYS and DUP.SYS files, and turn on the computer. Again, XL and XE owners should hold down the [OPTION] key during this process. When the DOS menu appears, use the [L]oad File option to load and run CHARFONT.OBJ.

Disk owners may also choose to copy the CHARFONT.OBJ program to another disk and name it AUTORUN.SYS. Now, just insert this disk into the drive, turn the computer on (XL/XE owners press the [OPTION] key) and the program will autoboot.

USING THE PROGRAM

The main screen is divided into three windows. At the top, the Drawing window holds your Edit screen, a grid on which you plot your characters. The little white marks at the top of this screen show you where each character is divided. The pink line at the bottom of the screen indicates the position of your drawing cursor.

The Selecting window (in the middle) displays the complete character set. Move the cursor over any character and press the joystick button to bring it into the Edit window.

The bottom window shows what your character will look like when viewed in any chosen graphics mode.

COMMAND SUMMARY

This program has more than two dozen commands. Fortunately, you only need a few to get acquainted with it. To operate any of the following commands, all you need to type is the letter or symbol shown inside the square brackets [ ]. For example, if you've never used this program before, you'll probably want to type an [H] or a [?] to access the [H]ELP screens.

[E]DIT— This command alternately moves your cursor between the Edit window and the Drawing window.

[B]LANK— Changes a series of characters into blank spaces. Place the cursor on the first in a series of characters to erase, press the joystick button, then place the cursor on the last character in the series and press the button again. All of the characters in this range will be changed into blank spaces.

[R]ESTORE— Changes a series of characters back into their original, unaltered forms. This command works the same way as the BLANK command.

[C]OPY— Makes multiple copies of a single character. Move the cursor over the character to copy and press the joystick button. Now, place the cursor over any other character and press the button. This erases the current character and replaces it with a copy of the first character. Press the [ESCAPE] key to leave this mode.

[K]OLOR— Multi-colored characters are rarely used in word processing programs. However, when redefined to look like rockets, aliens and landscapes, they are frequently used in games. ANTIC modes 4 and 5 are four-color character modes designed for this purpose. To adjust the colors of your character, first press the number (1–5) of the color register you wish to alter. Once you've selected a color register, move the joystick left and right to adjust the color value. Move the joystick up and down to adjust the luminance value. Press the joystick trigger to choose another color register to alter.

[F]LIP— Changes the characters in the Edit window into their mirror-images.

[I]NVERT— Inverts the characters in the Edit window.

[G]RID— Lets you choose the size of your Edit window grid. The maximum window size is 6×6. Since the screen is not large enough to display a grid of this size, the program uses a 6×2 window to scroll vertically through the grid. When using Graphics 2 or ANTIC mode 5, it's best to use a grid no bigger than 6×4.

This is the most powerful type-in character editing program we've ever published

[A] TOP— Moves the cursor to the top of the Edit grid.

[Z] BOTTOM— Moves the cursor to the bottom of the Edit grid.

[X] SWITCH— Alternates between two characters. This function is useful for creating animation sequences. Press the [ESCAPE] key to exit this mode.

[▰] INVERSE— Change the current display to inverse video.

[M]ODES— Select from available graphics modes—Graphics 0, 1, 2 and ANTIC modes 4 and 5.

[S]ELECT SET— Alternate between the built-in character set and the redefined set you're working on..

[P]UT SET— Shows what your character set will look like in the graphics mode you've chosen. Remember that Graphics 1 and 2 only use the lower half of the character set. Press the [ESCAPE] key to exit this mode.

[U]NDO— Restores the characters back to their original form.

[>] UPDATE UNDO— Update the characters to the current data. It's useful when you're making uncertain changes.

[W]RITE DATA— Scans for characters you've redefined, then writes the data for those characters to disk, tape, printer, or screen. If you write the data to disk or cassette, you may also choose to write this data as source code. This option will generate either BASIC DATA statements, or Assembly language .BYTE statements. The computer asks you for a starting line number, the language you want to use (BASIC or Assembler), and a SAVE filename for the resulting file. When you're done, simply ENTER the resulting file into your program.

[D] INPUT DATA— This function lets you type in the numbers to form a character, instead of drawing it with a joystick. This is useful if you've already calculated the eight numbers needed to redefine a character. Just choose the first character to change and type in those eight numbers. Press [RETURN] and you'll be prompted to type in the data for the next character. If you don't want to change that character, press [RETURN] to skip that character, and edit the next one. Press the [ESCAPE] key to exit this mode.

[−] SHIFT UP— Shift the characters in the Edit grid up one position. Bits in the top row will wrap around to the bottom row.

[=] SHIFT DOWN— Works like SHIFT UP, but moves the characters UP, but moves the characters left by one position.

[+] SHIFT LEFT— Works like SHIFT UP, but moves the characters left by one position.

[*] SHIFT RIGHT— Works like SHIFT UP, but moves the characters right by one position.

[1] SLOW— Decreases the speed of the drawing cursor.

[2] FAST— Increases the speed of the drawing cursor.

CONSOLE KEY COMMANDS

[OPTION]— Displays a disk directory from any selected disk drive.

[SELECT]— Loads a previously-saved character set. Will also load character sets created by most other

continued on next page

editors.

[START]—Saves the current character set and the values of the five color registers.

GET THE MOST

If you only want to redefine a few characters, put your cursor in the top screen on the character you want to change, press [E] for Edit, select the character you wish to replace it with, and press the joystick trigger. This will perform an UPDATE on the character set information. Now you may continue drawing.

Use the right half of the bottom screen to see what your characters will ultimately look like. The bottom left portion displays your characters in inverse video. Remember that GRAPHICS 1 and 2 use only the lower half of the character set. Normally, you cannot display lower case or inverse video letters in these modes. Instead, the characters will be displayed in different colors. For example, in Graphics 1 an uppercase, non-inverse "A" will look just like a lowercase, inverse "a"—except the two will be displayed in different colors.

In ANTIC modes 4 and 5, the color register for playfield two (location 710, $02C6) is not used in inverse video. Playfield three, (location 711, $02C7) is used instead. This gives us

UltraFont has more than two dozen commands

five colors to work with, although we can only use four in any one character.

COLOR REGISTERS AVAILABLE
NON-INVERSE
COLOR0 (location 708, $02C4)
COLOR1 (location 709, $02C5)
COLOR2 (location 710, $02C6)
COLOR4 (location 712, $02C8)
INVERSE
COLOR0 (location 708, $02C4)
COLOR1 (location 709, $02C5)
COLOR3 (location 711, $02C7)
COLOR4 (location 712, $02C8)

You can also merge two character sets into one. Just put as many as 36 characters of the first set into the Edit grid, load in the second character set, and use the [U] UNDO command to link the two sets.

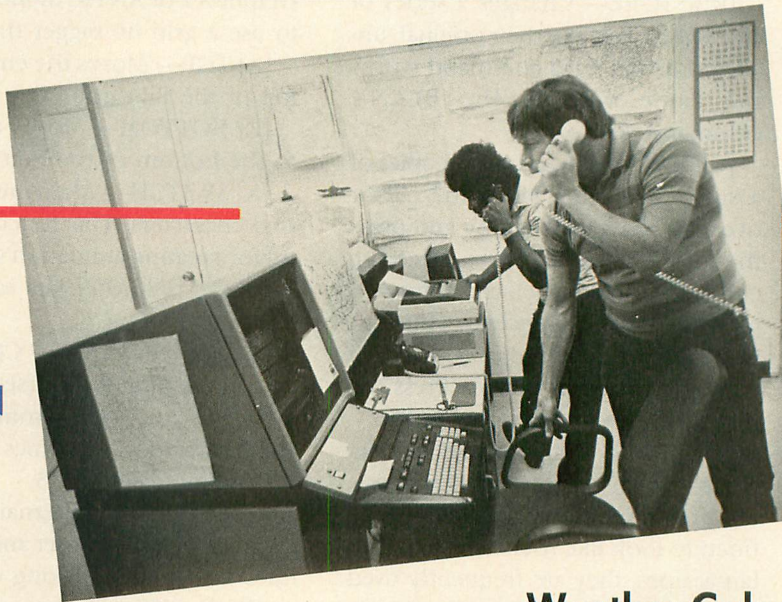
Antic readers will certainly discover many other creative ways to unleash the power of UltraFont. Don't forget to write and tell us what you have created.

Listing on page 79

Steven Lee, 17, is a Sacramento, California high school student who has been programming his Atari 800 for four years.

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Erik Weber

Weather Calc
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FLOPPY FILER

Handy disk directory printouts

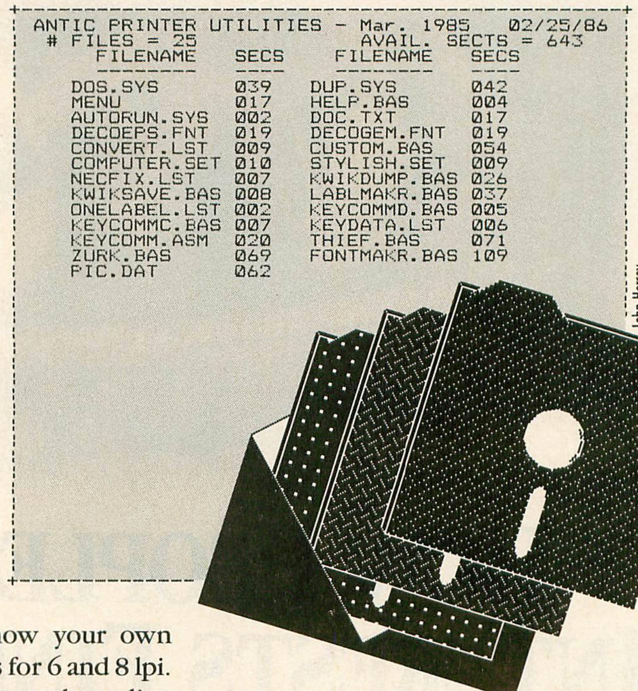
by ROBERT BLANEY

Organize your fast-changing disk files. This useful BASIC program creates a paper printout of the file directory—exactly as it appears when you call the disk directory to screen. Slip the directory card into your disk envelope and find every program at a glance. Works on any 8-bit Atari computer with disk or cassette.

As you use your Atari more to organize your life you'll find something else to organize—your disks. If you trade programs, download from bulletin boards and develop your own programs like I do, you probably spend too much time labeling diskettes—and relabeling diskettes. And if you have 10 or 20 programs or files on a disk, it takes time to write each filename by hand—let alone find enough space to scribble all the filenames for a double-sided disk on a single label.

No more scribbling with felt-tip pens. Floppy Filer is here. In seconds, this simple program prints a paper insert that you cut to size (along the dotted lines) and slip into the disk envelope. Your disk directories now become easily visible and are easily updated. The filecard displays the name and size (in sectors) of each file, the total number of files on the disk, the number of free sectors and the date.

No more scribbling with felt-tip pens. The program prints paper inserts that you slip into the disk envelope



John Hersey

USING THE PROGRAM

This program requires a printer that can print at 6 and 8 lines per inch (lpi) to create the correct size insert. The listing is written for Epson, Star and Gemini printers. If you do not have an Epson or compatible, but your printer *can* print at 6 and 8 lpi, you will need to know your own printer's control codes for 6 and 8 lpi. The listing needs these codes at line 490 for 8 lpi and line 600 for 6 lpi. These *must* be changed before you use this program.

Type in Listing 1, DSKINSRT.BAS, check it with TYPO II, and SAVE a copy before you RUN it. After the title screen graphic of a floppy disk appears, simply follow the prompts. Insert the disk for which you want to create a filecard into the disk drive and press [RETURN]. Now type in the title you want to give the directory—it can be up to 38 characters long—and then [RETURN]. The Blaney Family has developed a habit of writing titles that provide useful information such as which DOS and density are on the disk and whether BASIC is needed.

Even if you don't want a date on the disk, the program will ask you for one. For January 1, 1987 you'd type 01—01—87 and press [RETURN].

You can print two inserts on a single 8 1/2×11 inch sheet of paper. When you are finished, remove the directory paper from the printer and grab your scissors. Simply cut along the dotted lines and you'll have a perfectly-sized jacket insert.

Robert Blaney is an 18-year veteran of data processing management. He computes on an Atari 800 with his son at home in Long Valley, New Jersey.

Listing on page 85



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FILE MASTER

No more disk disorganization

by JASON WORLEY

This useful database for disk directories sorts files alphabetically, by disk number, file type, file name extender, or number of sectors in the file. The BASIC program works on all 8-bit Atari computers with at least 32K memory and a disk drive.

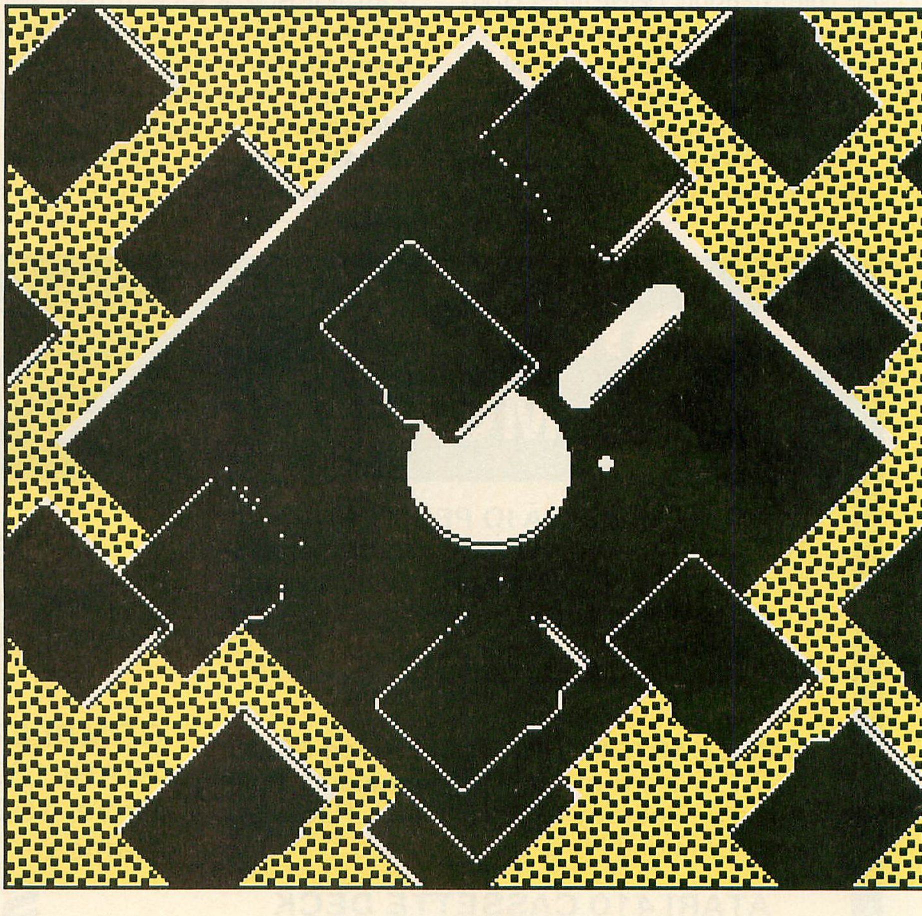
Many Atari owners face this common problem, trying to find a specific program among dozens of disks containing hundreds of programs. After countless hours of fumbling around shoeboxes full of disks, I decided to solve the problem once and for all. The result is File Master, a program which sorts files alphabetically or by disk number, file type, file name extender, or number of sectors in the file.

USING THE PROGRAM

Type in Listing 1, FILEMSTR.BAS, check it with TYPO II, and SAVE a copy before you RUN it. In line 2630, the 800 can be changed to another number, depending on the number of files you expect to index.

Never fall victim to disorganized disks again

File Master first shows a brief title page and then the main menu. The choices are similar to those in Broderbund's Print Shop. Select a function by using the up-arrow and down-arrow. (You don't need to hold down the [CONTROL] key.) Press [RETURN] to begin the function you selected. Most of the program is menu-driven and has self-explanatory onscreen prompts.



On the main menu, the following options are available:

Add Records
Display Indexes On Screen
Print Indexes In Memory
Sort Indexes In Memory
Save Indexes To Disk
Load Indexes From Disk
Delete Index Disk File
Delete Index From Memory
Clear Memory
Exit Program
Display Current Directory
Change Drive Number

continued on next page

Records may be added at any time. The Add Records selection gives you a prompt for disk name and number and then asks if you want to print labels for the disk. You can also choose from a list of one-letter headings to identify each file as a utility, game, etc. You can change these headings to suit your own needs.

Choose the Print Indexes selection to print a current list of indexes in memory to either the screen or the printer. The Sort sub-menu works like the main menu; use the up-arrow and down-arrow keys to select an option, and start it by pressing [RETURN]. The Save and Load options will prompt you for a file extension of three characters or less.

Delete Index File erases a previously saved index and prompts you for a file extension. Delete Index From Memory erases one disk directory from the rest of the indexes. Actual deletion won't happen until the file is saved back to the disk.

Clear Memory should be used carefully. It permanently erases all indexes

Sorts files alphabetically, by disk, type, extender or sectors

which have not been saved to disk. The program asks you to verify this choice as an added precaution.

To see what files are on the disk currently in the drive, choose the Display Current Directory option. And finally, the Change Drive selection switches you to another disk drive.

PROGRAM TAKE-APART

File Master will work on any Atari with at least 32K RAM. If your Atari has more memory, the program is smart enough to use the extra RAM for sorting more records. However, File Master cannot acess the extra 64K of RAM in the Atari 130XE model.

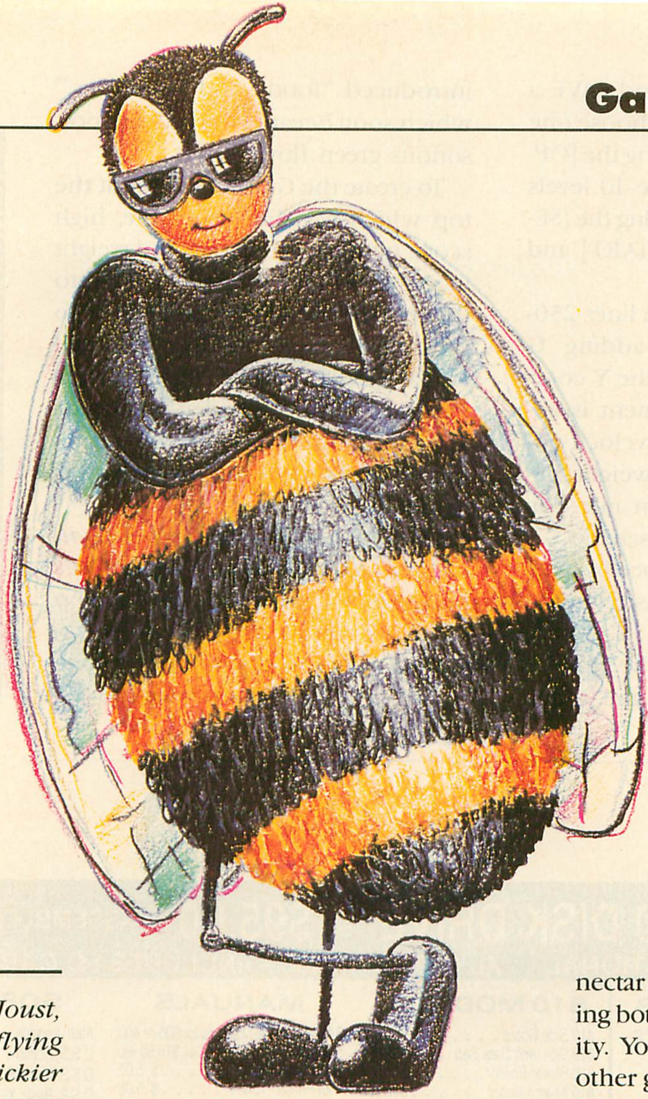
The unsorted data is kept in AREA$ and is DIMensioned according to the amount of free memory in your Atari. This routine is in lines 2625-2630.

To speed things up, the sorting routines show up early in the program (lines 60-130). The screen also turns off to make the sort go faster and you are told approximately how long the sort will take. For the sake of simplicity, I purposely left out any machine language sorting routines. I think readers can benefit by seeing how a sort is accomplished in BASIC.

For the most part, I have left the program open so you are free to learn from it and experiment with changes. Have fun tinkering with File Master, and never fall victim to disorganized disks again.

Jason Worley is 15 and attends Washington High School in Tulsa, Oklahoma. He has written many programs in BASIC and ACTION! with his Atari 800 during the past four years.

Listing on page 82


Ward Schumaker

Part Lunar Lander and part Joust, Bumblbee is an intriguing flying game that you'll find a lot trickier than it seems. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.

BUMBLBEE

by EDDIE CARSTENS

Buzz, buzz, buzz! You are a Bumblbee—a flower-eating mutant bumblebee—and your straightforward goal is to remain airborne forever.

However, your food intake has drastic effects on your ability to keep flying. Lose too much weight and you'll go to bee heaven. Gain too much weight and you'll probably end up in the other place. You must maintain a delicate balance and a reasonably good sense of direction while avoiding poisoned flora in order to keep alive and buzzing.

You'll need a joystick to keep the bee away from the top and bottom of the screen, from which it will bounce like a jai alai ball. You get only three bounces before the bee dies and the game is over. And don't think you can take refuge in the sides of the screen either—they're flypaper.

It's easy to tell a good flower from a bad one. The red ones are nutritious—you'll be awarded 10 points per meal (and an extra bounce off a side for every 50 points), but you'll gain an extra gram of body weight. The green ones are toxic, and contact with them makes a bee giddy. Toxic nectar changes your direction, reversing both horizontal and vertical velocity. You could easily be thrown into other green flowers if you aren't careful. Hit a green flower on your last bounce and you're one dead Bumblbee.

Your Bumblbee can only buzz hard enough to support 10 grams. In fact, three to six grams is the optimum weight for flight control. Above six, you'll be fat and difficult to maneuver. And below three, you could starve. You don't want to float away like a helium balloon, but you certainly don't want to hit the surface at any great speed either.

Lunar Lander fans will be on familiar ground with Bumblbee. The kind of control between eating and weight maintenance is the same as that between rocket thrust and the moon's gravity. The joystick button produces a flapping noise, and the function is similar to the rocket thrust in that it makes the bee hover and prevents it from falling.

ABOUT THE PROGRAM

Type in Listing 1, BUMBLBEE.BAS,

continued on next page

check it with TYPO II and SAVE a copy before you RUN it. Choose one of the five speeds by pressing the [OPTION] key and one of the 10 levels of bee metabolism by pressing the [SELECT] key. Now press [START] and you're off.

The gravity algorithm in lines 250-340 works by simply adding G (grams) to the velocity of the Y coordinate. Horizontal movement is adjusted by adding G to the velocity of the X coordinate. The weight decreases at the metabolism rate you choose before the game starts.

I came up with Bumblbee by accident one day while I was trying to simulate Joust by using a dot in Graphics 7 to represent the rider. It looked more like a bee to me. I then introduced "food" and "obstacles," which soon became the red and poisonous green flowers.

To create the Graphics 0 line at the top which contains the score, high score, number of bounces and weight in grams, I POKEd a 66 (64+2) into the fourth byte of the display list. To print characters on this line I first had to POKE 87,0, then PRINT, then POKE 87,7. Once I had added speed selection, sound, drawing and scrolling "Game Over," the program was finished.

Eddie Carstens is a high school senior from Rolla, Missouri. Bumblbee's acceptance by **Antic** *caused such a local stir that a story about it appeared in his hometown newspaper.*

Listing on page 86

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- ☐ Business Communications MW012
- ☐ Business Writing 1 . . . MW013
- ☐ Business Writing 2 . . . MW033

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GENIE

401 North Washington Street
Rockville, MD 20850
(800) 638-9636
$5 per hour—Evening/Weekend/Holiday (300/1200 BAUD)
$10 per hour for 2400 BAUD

Reviewed by William Colburn

GEnie, the General Electric Information Service, is the newest commercial online service and also the cheapest at $5 an hour, even for 1200 baud modems.

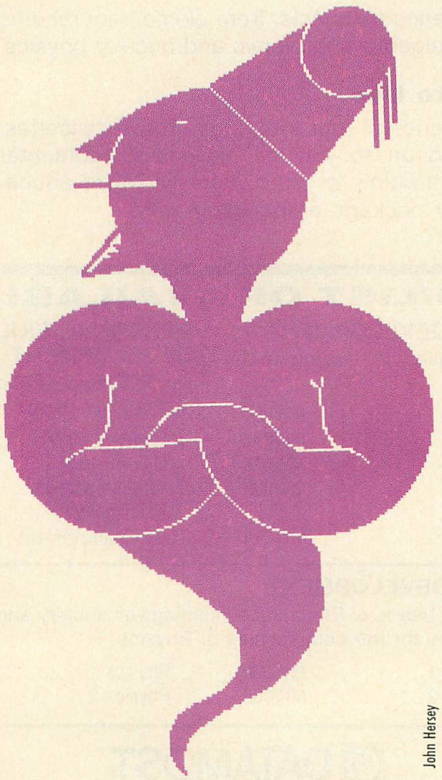
The overall feeling of GEnie is very friendly with frequent prompts and helpful instructions. From the moment new users log on they're guided through the steps of setting up terminal defaults and presented with the main menu.

GEnie provides the usual online services like electronic mail, news and commentary, articles, electronic magazines, a CB simulator and national real-time conferences. There is also a Shop and Swap, where you can buy from or sell to other GEnie users on a national BBS, and the Game Room, where you can play Stellar Warrior, a multi-player game by Kesmai that sounds similar to CompuServe's MegaWars, and many other single or multi-player games.

Instead of SIGS, (special interest groups) GENIE has RoundTables where owners of various brands of computers or special hobbies can gather. At the Atari RoundTable you can select from the bulletin board, a place to post messages to all RoundTable members; a real-time conference with several "conference rooms" including the general room where there is a scheduled group conference every Wednesday night at 10 pm, Eastern time; and a public domain software library.

The Atari software library is of fair size, presently containing about 200 public domain programs. It is growing fast, however, because GEnie provides free upload time. This policy was scheduled to expire on May 31, but has been so successful that GEnie may extend it. The Atari RoundTable software library has 11 categories, including one specifically for the ST. Downloading and uploading is where GEnie really shines with the fastest XMODEM protocol transfers I have ever seen.

Bob Retelle, the system operator (sysop) of the Atari RoundTable, got his first sysop experience on local bulletin boards in Michigan, where he lives, and then became a co-sysop on the Delphi Atari SIG. Bob had become acting chief sysop on the Delphi SIG by late last year, when he was approached about GEnie's Atari RoundTable. You'll find Bob very helpful and he adds to the Atari RoundTable's warm atmosphere.


John Hersey

I have only a few nits to pick about GEnie. In conference mode, there is no command comparable to CompuServe's [CONTROL] [V] which redisplays the line you have been typing if you get run over by somebody else's message. It is a good idea to use a software package with an edit window while in conference mode on this service. I was able to participate without either of these tools, but they would have been helpful. GEnie also defaults to half duplex, which I don't care for. You can get full duplex, however, if you type a [CONTROL] [R] after the U#= prompt before you enter your user number.

Overall, I liked GEnie a lot and expect to spend a lot of time using this service.

SILENT BUTLER

Atari Corp.
1196 Borregas Avenue
Sunnyvale, CA 94086
(408) 745-2000
Requires 1050 disk drive
$24.95, 48K disk

Reviewed by Stephen Roquemore

Silent Butler is a two-disk personal finance package that can track three checkbooks, three savings accounts, and includes a reminder file that holds birthdays, anniversaries and other dates. If you order the optional plastic checkholder, Silent Butler will even print on your own checks.

Silent Butler is easy to understand and use. It does what it claims to do. The program guides you to organizing your bills into fixed or variable expenses and automatically collects them into a current bills file for processing.

If you put the program disk into a 130XE, it automatically loads more of the program into memory in order to work faster than it does on the 800XL.

As the program loads, it displays a picture of a distinguished pipe-smoking gentleman—your "Silent Butler." The program is organized into two sections (mysteriously called "Bookmarks"), one with everyday procedures and the other with less often used activities.

The program leads you through each function in order, asking if there is anything you want to do here. When you become more experienced with the software, there is also a Jump feature that lets you skip around between functions. The program also saves automatically fairly often, so inexperienced users do not run the risk of losing much of their data.

At the end of each Bookmark, you are given a chance to review what you have done and make corrections. At the end of Bookmark 2, the Butler asks to "retire for the evening." You dismiss him by removing your disk and switching off. The cutesy formal language soon wears thin, and slows down the actual work.

The records disk is supposed to hold a year of data and can be backed up, but the program disk is copy-protected. As noted in the heading, you need an Atari 1050 disk drive, because Silent Butler is in an enhanced density format which runs only on the 1050. The program allows use of only one drive, even if you have more. Some of its functions require interminable disk-swapping because of this.

Silent Butler is simple to use and is functionally adequate for home needs. But I could recommend it for more users if Atari produced a single-density version that would work on other drives besides the 1050.

SUPER 3D PLOTTER II

Elfin Magic Company
23 Brook Place
East Islip, NY 11730
(516) 581-7657
$39.95, 48K disk

Reviewed by Len Dorfman

Super 3-D Plotter II is a 3-D design, display and animation program for 8-bit Ataris. Use your joystick to draw straight-line images from point to point. Super 3-D Plotter remembers the points of your line drawing, adjusts, redraws and page-flips the completed new image. The result is an animation display that's smooth and impressive to see.

In the Display mode, you can rotate the wire image drawing on a variety of axes and control the user distance from the shape. The user has control of a hidden line algorithm in the shape display.

Super 3-D Plotter lets you save your image to a file that contains all the points, or save the entire screen in a standard 62-sector Graphics 8 or Micro-Painter 7+ file format. The screen dump Load and Save functions are available from the Display mode, although the program does not allow naming the screen file. The default screen name is "Picture." Take care not to overwrite this file if you want to save views from more than one perspective.

There are two screen dump printing functions: one slow and high-density, and the other quick and low-density. The dump defaults to the Epson graphic standard, but the manual provides information on reprogramming the dump for other printers. Unfortunately, you'll be responsible for knowing your printer's graphic-enable byte stream and pin head fire format. This can be a tad tricky.

The Graphics Editor creates your 3-D images. It seems complex at first, but the manual explains it thoroughly and a little patience will get you started. The traditional "plot a point and connect a line" method is used. After a short time, I had simple drawings rotating on the screen.

All things considered, I like Super 3-D Plotter. The program was designed with "open architecture" so that you can port data from other programs, or save the screens to use with other graphics and printing software. Super 3-D Plotter II is useful to people like me who find fascination in seeing wire-framed images rotate, or who want printouts of a line drawing from different perspectives.

BASIC VIEW

Softview Concepts
P.O. Box 1325
Lisle, IL 60532
(312) 968-0605
48K disk, requires joystick
$20

Reviewed by Charles Jackson

BASIC View is an imaginative programming utility that will greatly aid you during debugging sessions. Written in machine language, Basic View adds several debugging commands to Atari BASIC, including a BASIC tracer.

As each line of your code is executed, the BASIC tracer highlights it in a screen window. So if there's a bug in your program, BASIC View quickly helps you locate the offending line.



You can adjust the speed of the tracer to skim over trouble-free code while zeroing in on potential trouble zones.

BASIC View can be used effectively with nearly any program you develop. It resides just below Atari BASIC (28672-40959) and just above screen memory. Therefore it should not interfere with your own machine language routines which reside elsewhere.

BASIC View divides your screen into three horizontal windows. At the top is a scrolling window displaying 11 lines of your program. As each line is executed, it is highlighted in inverse video. A glance at this window lets you know what your Atari is up to

continued on page 48

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throughout the execution of your program.

The middle window contains BASIC View's menu of commands and options. The bottom window displays the values of selected variables or memory locations used in your program.

As with any BASIC tracer/debugger, there are a few tricks you must learn for harnessing the full power of BASIC View. For example, since some BASIC View commands are issued through a joystick connected to port one, you must remember to reconfigure BASIC View when editing a program which also uses this port. BASIC View can quickly be reconfigured to accept joystick commands through any other joystick port.

Secondly, there are several key memory locations which BASIC View refuses to share with your program. Such locations include the starting address of the display list, the address of any routines to be run during the vertical blank, and the VSCROL register which controls fine vertical scrolling. For such cases, BASIC View provides alternate memory registers which *must* be used instead of the standard ones.

Without BASIC View, the VSCROL register resides at memory location 54277 ($D405). Since BASIC View uses this register, it creates an *artificial* VSCROL register at location 29762 ($7442). If you want to use BASIC View to debug a program that uses the VSCROL register, you *must* change your program so that it uses the artificial VSCROL register. After you are through debugging with BASIC View, you must then re-edit your program so it uses the actual registers again. Only a handful of these artificial registers must be used, and all are fully documented in the BASIC View manual.

After a telephone consultation with the **Antic** technical staff, BASIC View designer Jeffrey Fischman added an artificial register for the character base register (CHBAS, location 756, $02F4) and created version 1.2 of the program. So if you purchased BASIC View version 1.1 or 1.0, write to Softview Concepts for a free copy of version 1.2. The earlier versions will not support BASIC programs that use redefined character sets.

The artificial memory registers should pose little problem to programmers who adhere to a modular programming style. By checking one small subroutine module at a time, the number of artificial registers needed is drastically reduced. Once a subroutine is "clean," it may be added to the rest of your program with confidence.

Programmers may wish to include a DEBUG mode in their code. The following simple routine will enable the artificial VSCROL register when DEBUG=1, and use the real one when DEBUG=0.

```
10 DEBUG=0
20 VSCROL=54277
30 IF DEBUG THEN
   VSCROL=29762
.
.
.
320 POKE VSCROL,1
```

If your program uses several artificial registers, this technique can be a valuable timesaver. Just edit line 10 to 10 DEBUG=1 and your program will use the artificial registers instead of the real ones.

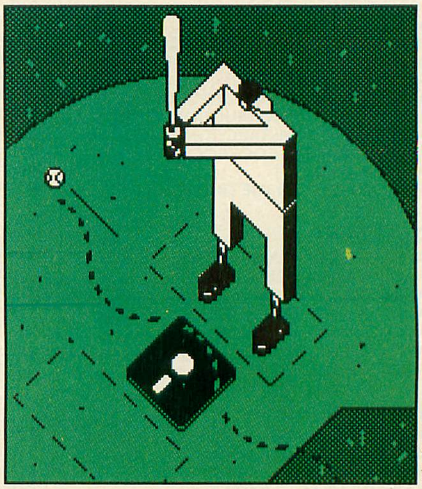
MONDAY MORNING MANAGER

TK Computer Products
P.O. Box 9617
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Reviewed by Walter Wenclewicz

Batter up! **Monday Morning Manager** brings power-hitting software to the field for baseball enthusiasts. It's a home run hit for statistics nuts like me. With both realistic ballplaying action and accurate record-keeping, this disk won't be collecting dust with your trophies.

The opening theme takes you back to Doubleday Park in Cooperstown,


John Hersey

New York. The graphics and action make you feel like you're in the dugout with Connie Mack himself. Hit a home run and enjoy a full-screen, exploding scoreboard. Argue with the umpires that call every play. You'll feel like Miller Huggins managing against Eddie Sawyer and his 1950 "Whiz Kids."

Monday Morning Manager will print out statistics and line scores of each game for both hitters and pitchers. Statistics nuts can throw away the pads, pens and rulers and complete a full season on disk, no fuss or muss. This is truly a satisfying feature for those who like to review a ballgame on paper once the dust has settled.

Every game has a foul ball or two. In this case, it's the instructions. Although they are thorough, they lack the clarity that a well-placed example or two could provide. For instance, when you've selected your 15 non-pitchers, the prompt doesn't tell you how to put the pitchers in. This means going back to the main menu for instructions, and even then it can be confusing.

Monday Morning Manager is fun,

continued on page 50

exciting and educational. Most importantly, it is realistic. Younger players will probably disregard the statistics feature, but managers of Little League teams could find it very helpful for keeping track of their players' accomplishments. I would strongly recommend Monday Morning Manager to anyone looking for some major league stats and baseball action software.

BALLYHOO

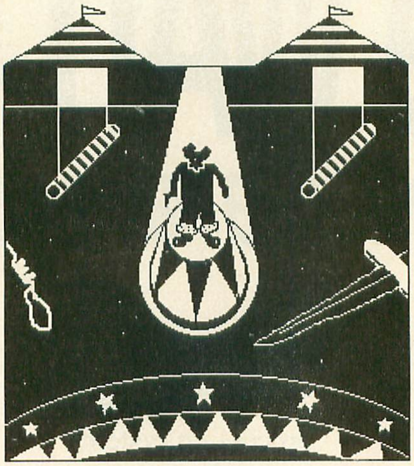
Infocom
125 Cambridge Park Drive
Cambridge, MA 02140
(617) 492-6000
$39.95, 48K disk

Reviewed by Michael Lasky

Everybody enjoys a good mystery, right? And the circus, right? Why not combine them for what should be a surefire hit? That's the premise of **Ballyhoo**, Infocom's newest all-text adventure game.

You're under the big top of the Traveling Circus That Time Forgot, headed by visionary Tomas Munrab (Barnum spelled backwards). The show is over and you loitered behind to see what goes on. Instead, you overhear a conversation about kidnapping Munrab's daughter, Chelsea. As you type in questions on the screen, you learn slowly but surely that this circus isn't all cotton candy and happy clowns. You investigate further, although danger lurks around every unknown corner. You've never been here before, so you must find your way around by painstaking trial and error. This is the ever-changing challenge of interactive fiction.

Infocom rates Ballyhoo as a "standard level" mystery, but it repeatedly baffled me. Characters give coy, cute and evasive answers when questioned. You need to be as tenacious as Sherlock Holmes to discover who kidnapped Chelsea and how to get her back. Remember, you're at the circus, which relies on flash and illusion to disguise its sordid underbelly.



John Hersey

Included in Ballyhoo are a ticket, a balloon and a souvenir program. Read them all carefully for important leads. With the ticket, you can have a palm reading or a hypnosis session, and questions will be answered differently depending on your sex. The balloon will get you past Harry, the guard. Ask Harry anything you want about the circus and its inhabitants—he enjoys talking.

When you stumble upon costumes and masks, try them on for size and disguise. Remember, you're an outsider, so play it cool. Act like you belong there. Greet everyone you meet. To get far beyond the sideshow, you must do seemingly outrageous things.

Like all Infocom's text adventures, Ballyhoo requires patience and endurance. This might not be the circus you want to run away with, but programmer Jeff O'Neill supplies enough escapist entertainment to make it seem as if you have.

MUSIC PAINTER

Atari Corp.
1196 Borregas Avene
Sunnyvale, CA 94088
(408) 745-2000
$19.95, 48K disk

Reviewed by Sol Guber

With **Music Painter**, you can play three different voices at a time. Choose from a piano, a flute, a violin and a drum. Just place colored lines on a musical staff with your joystick. These colored lines represent musical notes as they would appear on a player piano roll, and they perform your creation while the notes scroll by.

You create music by selecting from the icons lined up along the top of the screen. A paint brush icon is the major controller. Lower a musical note onto the bar with the joystick. If you press the trigger while moving the joystick, the note will sound. Moving the joystick either right or left paints the note on the sheet music. The longer the color line, the longer the note is sounded. You can play the music forward or backward, insert or delete spaces, and copy blocks of music anywhere within the song.

My eight-year-old daughter Rebecca and her friend Lauren used Music Painter for a week. Both said it was easy to write music with the program and transcribe the songs onto disk. Rebecca liked the idea of playing one voice like a violin and another like a piano, but she said there wasn't much difference between their tones. She and Lauren both liked the sound of the drum. Lauren said it would be better to know something about music in the first place, but Music Painter could help you learn.

Rebecca and Lauren thought the colors were sometimes confusing, that the top of the screen was too black and made it difficult to see the options. They also felt that the joystick was not a precise enough tool for operating the whole program. They complained because they couldn't erase a whole song if they didn't like it They also wished there could be a display of standard musical notes as well as the colored lines.

Overall, Music Painter is a solid piece of software and the controls are smooth. The program is generally easy to use, although it may be too complex *in parts*. However, it is a good tool for learning more about music and how to write your own songs.

THE

ST RESOURCE

ANTIC AUGUST 1986



Matthew Foster

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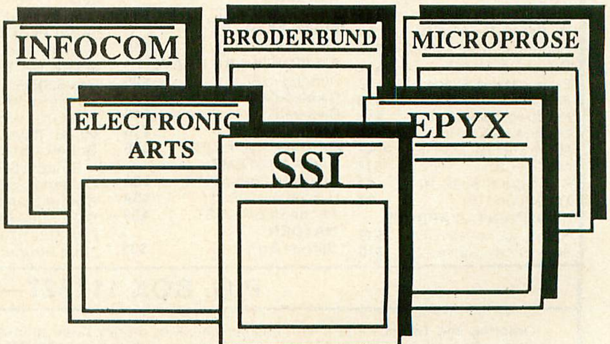
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by PATRICK BASS, Antic ST Program Editor

LINKLINE

Run your 8-bit Atari from your ST

Your eyes dart back and forth. A cold sweat breaks out on your forehead. You lean over the Atari ST and run your hand over the cool plastic. The desire is very strong this time. Dazed, you stumble out of the store and clutch at the cornice, waiting for your head to clear.

You almost bought the ST that time. But you've made up your mind that as long as your trusty 8-bit Atari keeps running, you aren't going to trade up.

You don't need to stuff your 8-bit Atari in the closet when you get an ST. This month I'm going to show you the simplest way yet to cable the two computers together and transfer files back and forth. You'll even learn how to use your 8-bit Atari as the ST's *intelligent printer buffer.*

Since January, 1986 we've included an ST HELP file on the Antic Monthly Disk describing how to swap files between the two types of Atari computers. But the earlier method is much more cumbersome. It requires simultaneous use of two different modem programs while the user must constantly check back and forth between computers. So starting next month, the Antic Monthly Disk side 2 ST HELP file will explain how to transfer files by using LinkLine.

MEET LINKLINE

LinkLine, which we are introducing this month, lets you control an 8-bit Atari from your ST keyboard, using the RS-232 communications standard to transfer files back and forth at 4800 baud. Connect a null modem cable between the ST and the 8-bit Atari, then run 8-bit BASIC LinkLine and ST LinkLine (a C program) on the respective computers.

For simplicity, the ST is the *master* computer and the 8-bit Atari is the *slave.* The slave computer waits for a command from the master computer, then decodes and acts upon that command.

Both versions of LinkLine currently recognize two commands—LOAD and SAVE. You can LOAD a file from any properly installed 8-bit Atari device, such as D: or C:, and SAVE an ST file to any 8-bit Atari device, such as D: or P:. For example, sitting at the ST, you could LOAD an 8-bit Atari file onto the 3.5-inch ST disk, or SAVE an ST file onto the 8-bit's 5.25-inch disk.

When you SAVE an ST file to the 8-bit Atari P: device, the 8-bit Atari becomes a printer buffer that accepts the ST file and patiently passes it to the printer, character-by-character, while the ST goes on about its business.

Although you can LOAD an 8-bit Atari program into your ST, it won't RUN. LinkLine is *not* an 8-bit Atari emulator.

As written, LinkLine does no error-checking on the incoming data. While I was developing this software I saw a need for some simple error-checking, such as generating a checksum for each block. So far, practical exper-

continued on next page

ence with the program has shown that none seems to be needed. Still, prudence demands at least minimal error-checks, so go ahead and add one if you like.

LinkLine's file-sending protocol is loosely based upon the original 8-bit Atari DOS file format protocol chosen by Optimized Systems Software. The LinkLine file protocol goes as follows: Byte zero is the ASCII STX (Start Text) character. Bytes one and two describe in LO, HI format the number of bytes that will follow in byte three through byte X. Byte X+1 is currently the ASCII ETX (End Text) character. This format allows transfers up to the limit of memory available. However, to keep the program simpler, LinkLine was written to work with files only as large as 33K, or about 270 sectors of a floppy disk.

If you need to transfer files which are larger than 33K, it is possible to rewrite the LOAD and SAVE routines to check the last character in each block transmitted. If the character is indeed an ASCII ETX the file transfer is finished. If not, you could expect another LO, HI pair of bytes describing the length of the next block of data. At the end of that block would be another check for the ETX character, etc. Files of practically limitless length could be sent this way.

CABLE CONNECTION

The "line" in LinkLine is a cable called a null modem. In the past, when Computer A needed to talk to Computer B—even in the same room—someone would have connect Computer A to a modem, connect Computer B to a modem, then have Computer A call computer B on the telephone. Then some bright inventor figured out that it was possible to plug computer A directly into computer B by using the modem ports and programming each of the computers into thinking *it* was the modem for the other. Since no modem is actually hooked up, the connection is called a null modem.

In our case, the modem port on the ST is next to the printer port and uses the RS-232 standard for communication. The modem port for Atari 8-bit computers is on the Atari 850 Interface Module (see the August, 1985 **Antic** for a list of dealers who carry the 850) and is known as device R1:. This port also uses the RS-232 standard for communication.

To build the null modem cable, you will need three inexpensive items that should easily be found in any large electronics store. For the ST connection, you need a DB-25 female jack such as Radio Shack #276-1548 ($3.99). For connecting to the Atari 850 Interface, you need a DB-9 male plug like the Radio Shack #276-1537 ($1.99). Finally, you'll need enough multi-connector wire to reach both the 8-bit and the ST. Radio Shack #278-1320 does the job for 10 cents per foot. You can separate the computers by up to 100 feet without undue problems.

Figure 1 shows the wiring diagram and a table of pin-to-pin connections. While this project falls towards the low end of the complexity scale, if you don't know which end of a soldering iron to pick up, get help from someone more knowledgeable or bring these instructions to your local electronics repair center and pay them to build the cable.

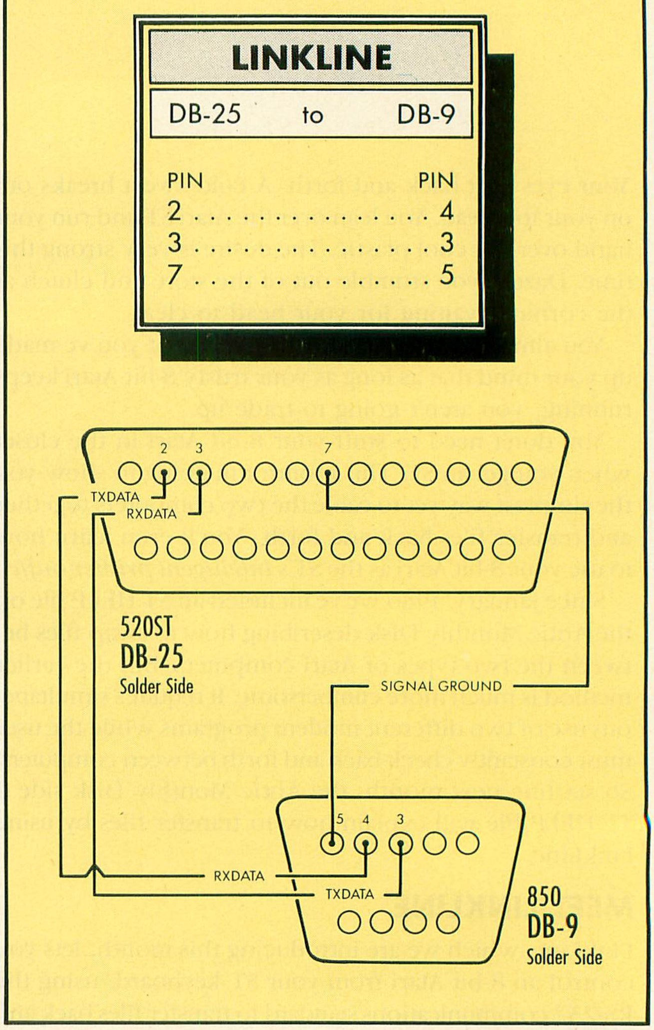
THE PROGRAMS

Type LINKLINE.C into your Atari ST and save a copy to disk. LINKLINE.C is the ST master program written in Alcyon C (from the Atari ST Developer's Kit). Compile, assemble and link this C language code to **apstart**, with **aesbind**, **vdibind**, **osbind** and **libf** trailing along behind. **Relmod** the resulting file into a **.prg** file and save it to disk.

For the Atari 8-bit, you don't need to type in Listings 2 and 3. They are assembly language source code provided for your information. Instead, type in BASIC Listing 4, LINKLINE.BAS, check it with TYPO II and SAVE a copy before you RUN it. This creates an executable disk file called AUTORUN.SYS.

Antic Disk subscribers should first copy AUTORUN.SYS to another 8-bit disk. Then, following the directions on

Figure 1



the monthly disk (one last time), port LINKLINE.PRG to an ST disk.

USING LINKLINE

To start transferring files, plug in the LinkLine cable and turn on the Atari 8-bit computer. The program will start within seconds, a white screen with dark letters and a READY prompt appear, showing it's ready to receive a command. If you get a long stream of "heart" characters, turn off your 850 interface and then turn it on again.

Over at the ST, make sure you boot with a disk that has the "Set RS-232 Configuration" desk accessory. Activate it, and set the RS-232 parameters in the box exactly as listed below:

Baud Rate: 4800
Parity: None
Duplex: Half
Bits/Char: 8
Strip Bit: Off
Xon/Xoff: Off
Rts/Cts: Off

Finished? Click on OK and return to the desktop, then double-click on the LINKLINE.PRG icon and follow the prompts. First comes a welcome box, then a box asking whether you want to LOAD or SAVE a file.

If you want to LOAD an 8-bit file, type the desired filename in the file selector box that follows. When you click on OK, the requested file will be loaded from the 8-bit and saved on the ST disk using the same filename as the 8-bit file.

If you want to SAVE a file, first choose the ST file to transfer from the file selector box and click OK. Next, choose the device and filename to send to the Atari 8-bit computer from the next file selector box. When you click OK this time, the file is transferred to the 8-bit computer.

In either case, when the transfer is finished you are asked if you want to SAVE/LOAD another file. If you don't select another SAVE or LOAD, then click out through the thank-you box at the end of the program.

ST TAKE-APART

Any C program must have a **main()** section and this one describes what the program does: **initialize();**, then **communicate();**, and when **finished** finally becomes TRUE, **terminate();** the application. Next, **communicate()** decides whether you want to LOAD or SAVE a file. Below that, **load_file()** requests a file from the Atari 8-bit, then writes the file received to the ST disk.

The function below that, **save_file()**, reads a file from the ST disk and transmits it to the Atari 8-bit disk. The function **send_file()** is called from **save_file()**, and stuffs the text in **text_buffer** out the RS-232 port character-by-character. Next, **read_the_file()** reads a file from the ST disk into **text_buffer** and **write_the_file()** writes **text_buffer** back to the ST disk.

The next function, **load_8bit_file()**, calls the function after it, **get_file()**. This pair sends the LOAD command to the 8-bit computers and receives the file from it. Next to last, **send_command()** formats and sends the LOAD or SAVE command and filename to the Atari 8-bit. Lastly, **terminate()** returns us to the desktop.

8-BIT TAKE-APART

Again, you *don't* need need to type in assembly language Listings 2 and 3, described below. You can get the same results by following the previous instructions for typing in Listing 4.

Listing 2 is LINKLINE.M65, the slave program written in 6502 assembly language as implemented by MAC/65 (from Optimized Systems Software). At the top, following the program's title and revision date. we **.include** two files from the MAC/65 system disk. These files contain the System Equates and OSS macros such as OPEN and CLOSE that operate exactly like their BASIC counterparts. Further down we **.include** the main file LINKA.M65 and then create an autorun file by pointing the program counter to the autorun vector (* = $02E0) and stating the autorun address (.WORD STARTCODE).

Listing 3, LINKA.M65, is the main section of code called from the first file, LINKLINE.M65. First we define three Macros of our own, BUMP, DBUMP and LDW. BUMP will perform signed two-byte addition. DBUMP performs signed two-byte subtraction, and LDW will LOAD the LO, HI bytes that make up an address (from a label) into two consecutive memory locations, forming a pointer.

Lines 530 through 810 contain local definitions and equates, with the program itself starting at line 860. The entire work loop is contained between lines 1280 and 1470. There we OPEN channel TV to the E: editor device which also clears the screen, changes the background and border colors to white (color 0, luminance 8), and sets the letter luminance to dark (color 0, luminance 2). Quickly we BPUT the title message to the TV channel we opened to the screen at line 1350.

Line 1370 is an XIO command which sets the level of character translation the R1: handler performs. This translation is explained fully in your 850 Interface manual. Here we set the translation level OFF by using a value of 32. Line 1380 is an XIO command which sets the BAUD rate for communication. Here, the value BAUD (13) is used to set the communication rate at 4800 baud. Falling into the MAIN routine, we BPUT the READY prompt to the TV screen, then go wait for a command. When one is received, we fall down to line 1440, where we BPUT the "working" message to the screen and go off to decode the command.

When the command has finished, we jump back up to the start of the MAIN loop to wait for another command.

OPENFILE is a subroutine which will OPEN a 5.25-inch disk file (to read from) named in the buffer FILENAME. Below that, WRITEFILE is a subroutine which will create and write the file in TEXTBUFFER to the 5.25-inch disk.

continued on next page

SENDANSWER is the subroutine which will transmit TEXTBUFFER out to the RS-232 port. GETCOMMAND is where the Atari 8-bit sits waiting for the ST to send it a command. It accepts characters from the RS-232 port until a CR is received. Control then passes below to DECODE, where the command line is scanned for an S or an L, meaning SAVE or LOAD. If one is found, the following letters constitute the filename, and control is passed to either SAVE or LOAD.

ADD-ONS

How far can you take LinkLine? Being as expandable as it is, probably very far. I expect to see many utilities designed to be used with LinkLine. The person needed to accomplish this is *you*. And then write to **Antic** and tell us how you did it.

As just one example of the possibilities, it would be nice to be able to display the 8-bit Atari disk directory on the ST screen. (How about clicking on an Atari 8-bit Icon?) Go to it!

Listing on page 91

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by PATRICK BASS, **Antic** ST Program Editor

ONLINE PICTURE VIEWER

GrafCon-ST: Part II

Last month, **Antic** published *GrafCon-ST,* a program that converts ST pictures between resolutions (low, medium and high) and also converts ST pictures into the RLE (Run Length Encoded) format used by CompuServe for their online high-resolution graphics. The complete program was too long to print in one issue. The RLE File Viewer program and the medium resolution converter functions in this issue complete the GrafCon-ST program.

MED-RES FUNCTIONS

The four medium-resolution functions left out of GrafCon-ST last month are **LOMED()**, **MEDLO()**, **MEDHI()** and **HIMED()**. As the titles indicate, the purposes of these respective functions are to convert LOw to MEDium resolution, MEDium to LOw resolution, MEDium to HIgh resolution and HIgh to MEDium resolution.

For example, if you need to use the **LOMED()** (LOw to MEDium) function, insert the **LOMED()** section of code into the *GrafCon ST* listing where **LOMED()** was indicated as being left out last month. Then recompile the program.

Last month's original listing shows clearly where each additional function should be added. But remember, as explained in the July, 1986 GrafCon-ST article, you don't need to type in any of the resolution conversion functions that you aren't going to use.

RLE FILE VIEWER

GrafCon-ST allows you to convert your ST graphics pictures into RLE format for uploading to CompuServe. But what about using the RLE VIDTEX pictures already online? This month's program will take the ASCII picture file downloaded from CompuServe (as explained in last month's *VIDTEX Converter* article) and convert it to any ST graphics file format.

To keep things simpler, this month's RLE File Viewer program is presented as a stand-alone application. You don't need to merge it into GrafCon-ST.

USING RLESEE

Make sure that your disk has a RLE ASCII file—which you have downloaded from CompuServe or created with GrafCon-ST, as explained in last month's articles. Then double-click on RLESEE.PRG. After the welcome box, you are asked to select a destination format for the picture. Click on either NEO, DEGAS, or DOODLE. Next, choose the RLE filename from the file selector box and click on OK. Either you will see the picture begin to appear, or you will see a box stating the ST doesn't think the file is a good RLE picture. While the picture is being drawn, you may press either mouse button to abort.

When finished, you will get a file selector box prompting you to choose or create a file to write the picture to. Then you are presented with an alert box asking if you want to draw another RLE image.

TYPING IN RLESEE

Listing 1, RLESEE.C, is the RLE file viewer program written in Alcyon C from Atari ST Developer's Kit. Type it in carefully and save it to disk. Compile, assemble and link this program to **apstart**, with **vdibind**, **aesbind**, **osbind**, and **libf** following along behind. Next, **Relmod** the resulting **.68K** file into an executable **.prg** program and you're finished.

Those of you with MegaMax C can type it in, but you need to **Malloc()**

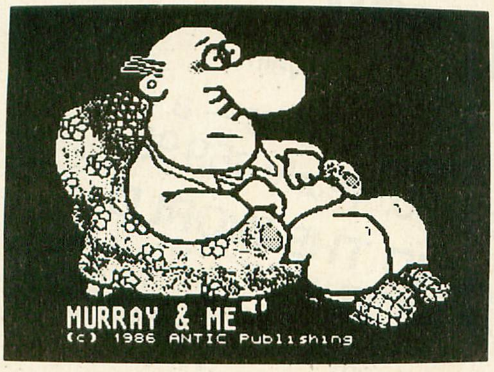
the RAM needed for the screen and text buffer. Hippo-C owners are also encouraged to try, but you'll need the Hippo XBIOS file available for downloading from the SIG*Atari ST Section on CompuServe.

PROGRAM TAKE-APART

At the top of the program we have a commented block for the program title and revision date. Below that are the **#defines**, which are included here to make the program a bit easier to read. Variable declarations are next, with string **char** definitions coming after.

Our **main( )** routine gives a list of what to do. First, **initialize( )** the application, then **convert( )** a picture and **repeat** the process **while(not finished)**. Eventually the application gets **finished** and will **terminate( )**.

The **convert( )** function describes the steps needed to properly convert an RLE file to a graphics file. First,



read_the_picture( ) into an internal buffer. The next line will let us **select_parameters( )**, which here determines what type of display format the resulting picture gets written in. Next, **make_picture( )** converts the RLE ASCII format into one of the three individual graphics formats.

The picture will be expanded to fill as much of the screen as possible, regardless of resolution. Eventually the conversion will be complete, and control will drop down to **write_the_file( )**. Before this section ends, you are asked if you want to perform another conversion. Click on YES or NO.

The **make_picture( )** routine first scans the file looking for the **ESCAPE G H** header RLE files need. If it doesn't find one, it assumes the file is not an RLE file and tells you so before it drops out. Otherwise, the RLE file has been **found** and control passes to **draw_picture( )**.

The **draw_picture( )** function will scan through the ASCII RLE file, pulling out the pairs of black and white pixel amounts. Since we will be drawing, we set **drawing** to TRUE, page flip to the destination picture buffer, set **row** and **column** to zero and hide the mouse cursor.

To reconstruct the picture, **while** we are **drawing**, we get each pair of black and white values and put the values in **blackdots** and **whitedots**. In **blackdots**, reaching the end of the file is signified with the ESCAPE character. Then **drawing** is set to FALSE, showing we are **finished**. Otherwise the next two blocks of code operate identically, first on the black dots and then on the white. Let's examine just the **blackdots** routine.

To plot the black dots, which we do **while** we have **blackdots** and we are **drawing**, call **plot( )**—passing in the **row**, **column**, and **color** of the dot desired. When the dot has been plotted, we decrement the count of **blackdots** and increment the **column** count to point at the next column to the right. Then we perform the **end_of_line_check( )** which checks for the end of each **column** in turn and then points to the next **row**.

After plotting each black and white dot in this pair, and before we check for the next available pair, we check to see if either mouse button is pressed in the **graf_mkstate( )** call. If either button has been pressed, the value in **pressed** will be greater then zero, so **pressed** can be considered TRUE and **drawing** will be set FALSE.

Finally, **read_the_picture( )** will read in the RLE ASCII file from disk and place it into a buffer. The function **write_the_file( )** writes the converted graphics picture back to disk in the proper graphics format, and **terminate( )** will properly close the application and exit back to the Desktop.

Listing on page 95
Listing on page 97

Reviewed by ERIK GUNDERSON

dBMAN

Important dBase III workalike

In the world of business computing dominated by the IBM PC, dBase III is the king of database software. This high-powered, versatile, relational database—like its successful predecessor dBase II—is complex and not easy to learn.

dBMAN, short for dataBase MANager, is a dBaseIII-compatible database that was originally developed by VersaSoft for the IBM PC. Now available for the Atari ST, dBMAN is a true relational database that can access records in up to 10 different data files at once. This makes it easy to transfer information between files, such as posting a transaction file from a batch entry file.

Like dBase III, dBMAN is actually a programming language controlled by a large repertoire of commands that you will need to learn. It does not use the ST's GEM interface or the mouse. Experienced dBase III users will feel right at home, but novices may well be advised to purchase at least one independently published dBase III tutorial book. The dBMAN manual does not contain a significant tutorial for beginners.

*(As this issue went to press, **Antic** learned that Atari Corp. has obtained the exclusive worldwide marketing rights to dBMAN. This move could potentially give dBMAN tremendous penetration of the Atari market—somewhat on the level that AtariWriter had in the 8-bit word processor field. According to Atari, developers will be able to use dBMAN to create commercial "runtime" applications that operate without the database. A GEM version of dBMAN will appear later, with inexpensive upgrades available to owners of the earlier version.*—ANTIC ED)

The upper part of the dBMAN screen is used to type in commands and display status information, including error messages, the current file and record, and a HELP line with prompts for active keys. From the command line, you perform the basic actions of creating and updating a database. Data files can be indexed on one or many fields, as can calculations using fields. When data won't fit in the lower display area, the arrow keys are used to scroll pages horizontally or vertically.

Among the best features of dBMAN and other dBaseII/III programs is the creation of command files which can automatically execute a series of dBMAN commands and allow programmers to control all user interactions. Command files allow turnkey applications to be created for novices.

dBMAN's ability to "filter" a database is mostly used with command files. Filtering allows the user to see only relevant data records. Outdated or inappropriate records are filtered and never shown.

continued on next page

The command names in dBMAN and dBaseIII are almost alike. But unlike dBase III, there is no command file text editor in dBMAN, so you must use a separate text editing program to create a command file, and then enter dBMAN to debug it.

If you are accustomed to using abbreviations in dBase, it is annoying that you cannot abbreviate dBMAN command keywords. dBase only requires the first four letters of a command keyword. It may turn out to be more difficult to transport dBase applications because the commands must be spelled out.

Sending information to a printer seems unnecessarily difficult. There are two choices. First, the command Set Print On sends to the printer any values displayed with the ? or ?? commands. This approach is not useful for printing lists, mailing labels or reports. The second approach is to define a report format using the Create Report command. This is complex and poorly documented. There are no examples of creating a report in the manual or on disk.

dBMAN is not copy-protected, making it easy to keep and maintain backups of the program, an important consideration to advanced users taking full advantage of the product. The program should also benefit from its ability to easily transport runtime applications to the ST from the IBM PC. And the wealth of excellent third-party books and classes teaching dBase III should prove helpful to beginning dBMAN users.

dBMAN
Atari Corporation
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N-VISION

Splashy new paint software

Reviewed by VIC ALBINO



This toucan's bright plumage and crisp detail demonstrate the graphics power of N-Vision.

Undoubtedly the name of this program is meant to be pronounced "envision," which the dictionary defines as "a picture in the mind." **N-Vision**, the first serious competitor to Batteries Included's DEGAS in the "painting" software category, unlocks the spectacular graphics ability of the Atari ST.

N-Vision was created by Audio Light, the same company that developed ActiVision's new Music Studio program, so files from both programs are compatible. With a program included on the disk, you can mix N-Vision graphics with Music Studio sounds to create computerized slide shows. (*We will review both the ST and 8-bit Atari versions of Music Studio in future issues.*—ANTIC ED)

N-Vision works in all three ST graphic modes and has over 70 different features you can access with a click of the mouse from drop-down menus—including paint, draw, spray paint, cut and paste, circles, boxes, loadable text fonts (five different sizes with special effects) and printer dumps for Epson-compatibles.

But that's just the beginning. N-Vision adds many new features to the usual list of functions you'd expect in a good graphics program, including double-screen graphics that dump to a printer as full-page pictures, pull-down screens, and a feature that really sets it apart from the pack, a "clipboard." On this third screen, you can try out new ideas without disturbing work in progress. You can also create and save your own additions to the pre-drawn "clip art" graphics supplied with the program. Audio

The first serious competition for Batteries Included's DEGAS

Light plans to release additional clip art disks at $20 each.

One feature that really sets N-Vision apart from DEGAS is "color cycling." This is the same technique that makes your RGB ST screen seem to vibrate with colors and flashing Atari fuji symbols when you first boot up TOS. With color cycling, you can "animate"

continued on next page

objects with a spectrum of colors that flip beneath the shape, making it appear to move. It's not true animation, but an illusion that makes light seem to flash, or a clown seem to juggle balls. Audio Light uses this beautifully to make a comet flash by in an optional Halley's Comet slide show disk, available for $15.

A palette of sixteen colors is stored in a "slot." Each slot's colors are active for an amount of time you specify. The colors are saved along with the artwork and automatically reactivated each time the picture is displayed. Another mode called "repeat" can help you create rudimentary animation by allowing you to define a line or shape and quickly duplicate it with the click of a mouse button.

> With color cycling, you can animate objects with a spectrum of colors, making them appear to move.

Most paint programs have a magnification mode allowing the artist to do detailed work pixel-by-pixel. N-Vision has three "zoom" levels at 2×, 4× and 8× screen size. Even better, a split screen shows half of the graphic in normal size while the magnification mode is being used so the full effect of the changes can be seen immediately.

Pull down a screen, and you'll find what looks like a patchwork quilt checkerboarded with dozens of ready-made color patterns in almost every conceivable design. If you still cannot find exactly what you want, an easy-to-use pattern edit function helps you make your own fill patterns using all 16 colors in the ST low-resolution mode.

By blending pixels, you can generate color shadings, enabling you to produce work that appears to have even more than the sixteen colors available in the low resolution mode.

Extra features even enhance the routine task of saving and loading pictures. You can rename and delete files, format disks (single or double-sided) and see how much disk space remains. Pictures can be saved in the widely used NEOchrome 32K format, or in a space-saving compressed format that allows you to squeeze more picture files on a disk.

A sample slideshow of music and graphics is included on the disk, along with the program that enables you to create your own. To use this program, you must first create a short text file with a text editor or word processor defining which pictures to show, how long to display them, and whether or not music will play during the presentation. Several songs created with Music Studio are included on the N-Vision disk to use as soundtrack accompaniments.

But even a package as excellent as N-Vision could be improved. So many features are in this program that an alphabetized index listing them all would be most welcome. The color animation feature is powerful but complex; new users would appreciate more examples of how to use it. A bug appears when the alternate text character set is used in its smallest size and some letters are incorrectly formed. It's a minor flaw, however, as this text size is so small it won't be used often anyway.

N-Vision meets the highest standards of excellence for ST graphics software. With N-Vision in your computer, the pictures in your mind can be turned into reality more easily than ever before.

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ST PRODUCT NEWS

ST reviews

PRO FORTRAN-77
Prospero Software
190 Castlenau
London SW13 9DH
England
$149

Reviewed by Mike Fleischman

Prospero **Pro Fortran-77** is a full implementation of the ANSI standard version of Fortran-77. The program comes with a manual and a disk containing the two-pass Fortran compiler and the linker. It does not come with an editor, however, so you will need a text editor or word processor to use this package.

I found I could use the software on either the ST's double-sided disk drive or two single-sided drives. The compiler supports all GEM AES and VDI calls as well as the TOS environment commands. Writing a program with full GEM support should be relatively easy.

This is a *very* complete Fortran package. The language supports 1-, 2- and 4-byte integers and logicals, 4- and 8-byte floating point numbers and complex numbers. As in standard Fortran the lines are 72 columns long and character names can be only six characters. Implicit type checking is also implemented as well as the standard default Fortran work file. The most files you can have open at one time is 15. GEM support deviates from the Fortran standard, because the company followed all the C definitions for the VDI and AES interfaces.

The first thing you will discover about the Pro Fortran compiler is that the language requires a memory resident section to be installed before anything else will run. This brings up an interesting question: Does Prospero want royalties for use of their memory resident section? I found that their copyright agreement states that you are buying this package *for your sole use only* and that you will not disassemble or alter the software for your own use.

From this I would conclude that if you intend to use this software for anything other than your own use, you'd be wise to contact Prospero Software for any agreements necessary.

The compiler and linker prompt you for the necessary information. The compiler also has optional prompts for all compile parameters. There is also a configuration program to customize the default settings. The compile time is relatively fast and the resulting code is compact. The only real hitch to writing your own program is the lack of an editor.

I used a Sieve test to measure the speed of the compiler on my 520ST (with one megabyte of memory and two disk drives). I found that the program compiled and linked in two minutes and 46 seconds, producing a program 4,758 bytes long. My running time for this program was 11 minutes and eight seconds, compared to 13 minutes, 21 seconds for ST Basic, and 2.53 *seconds* for Digital Research C.

Fortran-77 follows all the standard Fortran syntax and you should have no trouble moving your source code to a mainframe computer once it is running. I was impressed with the quality of the package and the ease of its use, but the copyright agreement

continued on next page

would make me want a second look. Also, I am concerned that the program runs so slowly.

But this is generally a very good implementation of Fortran-77. If you are a programming student or need to learn or use Fortran-77 in your college studies, this would be a worthwhile investment.

HIPPO BACKGAMMON

Hippopotamus Software
985 University Ave
Los Gatos, CA 95030
(408) 395-3190
$39.95

Reviewed by Harvey Bernstein

One of the great disappointments for 8-bit Atari users is the lack of a good backgammon program. Fortunately, ST owners now have their needs met with **HippoBackgammon**. This new game from Hippopotamus Software simulates a backgammon board in living color and offers a choice of two computer "robot" opponents to play against.

Both robots play a good game, but the more challenging opponent seemed to be Robot B. Each can be set to play at either beginner, intermediate, or advanced mode, but the more experienced player will want to stay with the advanced.

By far, the most unique feature of HippoBackgammon is its ability to modify, or "reprogram," the robot opponents. The decision tree used by each robot is in two parts, the cortex and the neurons. From within the cortex, you can control the likelihood that a robot will offer or accept the doubling cube, how frequently blots will be left and where, how many pieces to keep on a particular point and strategy for bearing off. The neurons can be adjusted to determine the relative importance of any point.

Excellent use is made of the ST interface and play is completely intuitive. You use the mouse to roll your dice and move your pips. The drop-down windows allow you to choose which robot you wish to play against, change board colors, save a game or switch sides. You can even play from a pre-set position—an option usually found only in chess programs.

My only quibble with HippoBackgammon is a small design flaw. The game lets you pass the dice back to the robot without moving your pieces, allowing you to ignore a normally bad roll. However, since most ST owners and all **ST Resource** readers are completely honest, they should have no difficulty in overcoming this temptation. At any rate, this is a good, solid translation of the popular board game and should be welcomed by any backgammon player who owns an ST.

WINNIE THE POOH

Sierra On-Line
Coarsegold, CA 93614
(209) 683-6858
$24.95, age 7 and up

Reviewed by Rebecca Guber, Age 8
(Typing by Sol Guber)

Winnie the Pooh in the Hundred Acre Woods is a very good program. It is one of the best kids' adventure games that I have ever played. It has excellent graphics, but I wish that it had more screens.

The object of Winnie the Pooh is to return things to their owners before the blustery wind comes and blows them away. There are 10 things that you need to find and return. You have to go to the screen where the thing is. The objects are hoes, or scarves, or carrots. You must figure out not only whom they belong to, but also how to get from where you are to where the person is.

Before I forget, let me tell you some more about the screens. You start out in a room and there are some directions on the bottom of the screen. On the top of the screen there is usually a really nice picture about the words on the bottom. You have to know how to read to play this game, because it is a lot like the Winnie the Pooh books. But the reading isn't too hard. Maybe a second grader might have a few problems, but not too many. You can leave the room by moving North, East, or West. If you pick South, the computer tells you that you can't go in that direction. You are then in some woods and there is a little story under the new picture. Sometimes there is also a thing in the picture. You can pick it up or not. You can carry only one thing at a time.

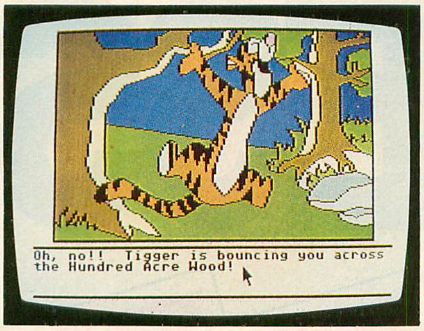
Before I forget again, let me tell you more about choosing what you want to do. This program was written for the Atari 520 ST and it works with a mouse. When you come to a screen, there are sometimes choices about what you can do there. Each choice has a number before it. To do the choice, you can press the number and then press [RETURN]. To go North, all you have to do is press [N]. I will let you guess what letter you need to go South. There is an arrow that you move with the mouse. You can move the arrow to a choice and press the button and it is the same as if you typed it.

So what you do is Pick up something, go to the person that it belongs to and Drop the thing there. There are 10 things to pick up in any game and my dad (who knows how to cheat a lot) says that there are 40 different things in all the games. You have to figure out what goes to all of Winnie's friends like Christopher Robin, Owl, Kanga and Roo, Eeyore and Rabbit. My Dad says that I forgot Tigger, but I did that on purpose. I don't think that Tigger should be in this game because he makes me cuss whenever he comes onto a screen. What he does is pick you up and bounce you around and you drop everything.

One other thing is that there is a toy box where you can go and save the game so that you can come back later and continue. There are also music and sing alongs in this game, with the words at the bottom of the screen.

The box says that the program will teach reading skills, map skills and logical thinking. It does teach reading because you have to read the bottom of the screen exactly. There is a map included and you need it to learn to get around the Hundred Acre Woods.

I am not sure if it teaches logical thinking or not, since it is usually obvious who the things belong to. Otherwise I could always ask Owl for a hint.



I really liked this game and will play it some more since it changes after you return everything and then there is a party for you.

ST GEM PROGRAMMER'S REFERENCE

Abacus Software
P.O. Box 7211
Grand Rapids, MI 49510
(616) 241-5510
414 pages, 1986
$19.95

Review by Russell Magnuson

For many of us who purchased 520STs early, the lack of documentation was a big disappointment. Fortunately this situation is beginning to ease with the introduction of Abacus Software's impressive line of ST guidebooks. The latest Abacus title is **Atari ST GEM Programmer's Reference** by Norbert Szczepanowski and Bernard Gunther.

The GEM Programmer's Reference is advertised as "the complete guide to programming the ST using the Graphics Environment Manager." It contains a great deal of very useful information, but is probably not the only book you will ever need for programming your ST computer using the GEM interface.

The text is divided into four main sections—ST GEM Organization, Programming with GEM, VDI and AES. Also included are appendices with an overview of the VDI and AES functions, and a listing of the 68000 instruction set along with a complete index.

GEM program examples in C and assembly language along with function call descriptions are provided. However, programmers seriously interested in exploring the GEM environment should be prepared to dig in, make notes, and spend lots of time compiling and recompiling the example programs.

A section on the Atari ST Developer's Package lists the various programs and utilities provided in this professional kit and gives short explanations of how to use them. The authors describe which files have to be on your work disk when compiling or assembling a program. Also included are instructions for using the MINCE editor, creating batch files, and compiling and linking C source files.

A section on the 68000 assembler lists the assembler options and source code directives that can be used when assembling a 68000 assembly language source file. A few programming examples in both C and assembly language help the user get a feel for compiling and assembling their own programs.

The value of the ST GEM Programmer's Reference really becomes apparent in the chapter on the VDI (Virtual Device Interface). VDI is the method GEM provides for interfacing to graphic routines such as drawing lines, circles, or rectangles. Parameters for each GEM VDI function call are described fully enough to provide the programmer with sufficient information to make a function work properly.

This is important because GEM is *very* particular about the input/output parameters you send it. You must know how to initialize them properly before trying to use a VDI/AES call in your program.

All of the available graphic functions on the ST are covered, along with their respective C function names. Complete and excellent program examples demonstrate how to draw a filled ellipse, rectangle and circle, and create graphic text output.

The chapter on AES (Applications Environment Services) describes the routines that GEM uses to provide services like drop-down menus, dialog boxes, or windows. There are sections on multi-tasking, window techniques and the graphics library. Each GEM AES function call is briefly described and its required parameters are listed. Program examples demonstrate how to open a window, display a warning box and create a menu bar.

Missing from the ST GEM Programmer's Reference is a comprehensive "nuts and bolts" discussion on how data is passed back and forth between GEM function calls and what form GEM expects this data to be in. This information is essential if a compiler other than Digital Research's CP/M 68K C compiler (part of the Atari Developer's Kit) is to be used for generating program code with the GEM interface.

For example: When using Haba Hippo-C to compile and run the example programs, I found that all the **int** variable declarations had to be changed to **short** in order for the GEM calls to do anything but crash. It turns out DRI's C compiler defaults **int** to 16-bit data while Hippo's **int** defaults to 32 bits.

All things considered, the ST GEM Programmer's Reference helps fill a large information gap about the Atari ST computers. It shows signs of being rushed to print, and because of the wide scope of information covered, some topics are treated far too briefly to be understood fully from this text. But after all, this is a reference book and not a tutorial.

The book's best features are its concise listing of the GEM function calls and parameters, plus the short program examples found at the end of each chapter. I compiled and ran several of these programs using Hippo-C with only minor changes. An optional disk containing the programs is also available for $14.95.

At $19.95, the softbound 414-page ST GEM Programmer's Reference should be considered an excellent value, providing the documentation necessary to begin exploring the GEM programming environment.

New Products

by GIGI BISSON,
Antic Assistant Editor

With the **OS-9 68000** operating system ($299 including BASIC, $249.95 without), up to five STs can be linked to function as a multi-user, multi-tasking system with the ability to send files from one ST to another. Or five dumb terminals could access a single 1040ST with 10 megabyte hard disk drive. The optimum number of stations sharing an OS-9 system would actually depend on the total amount of memory available and the memory requirements of each application in use.

Full-function C and Pascal compilers ($395 each) are available. The UNIX-like operating system can run many C programs designed to run under UNIX. An ST using 0S-9 can also run other OS-9 applications, such as Lifetree Software's ST version of the **Volkswriter Deluxe 2.2.** word processor ($295), an established IBM PC product compatible with the Hewlett Packard Laserjet printer.

Microtrends President Jim Solomon calls this a "minicomputer environment on a micro," and is marketing the operating system for schools, businesses, and in science and engineering as an intelligent workstation, especially on the 1040ST.

The possibilities include accessing a single **KnowledgeSet CD-ROM Player** from several ST terminals in a library or school. Or even using the Atari 800XL running VT-52 terminal emulation software as a dumb terminal attached by cable to the ST to run text-based OS-9 applications.

A totally character-based operating system, OS-9 doesn't use the ST's graphics, the mouse or GEM. "But there may be many graphic possibilities down the road." Solomon says.

MicroTrends, Inc., 650 Woodfield Drive, Suite 730, Schaumburg, IL 60195. (312) 310-8928. FINAL.

Lifetree Software, 411 Pacific Street, Monterey, CA 93940. (408) 373-4718. PRESS.

Atari ST and IBM PC computers can share information and software on **Imaginet** ($495), the first local area network for the ST. Imaginet can support up to 63 computers and is fully compatible with BMB's **The Manager** ($195), a full-function database and report generator for the ST. Identical to BMB's $695 IBM version of The Manager, the database can be shared between both machines even when used without the network.

BMB's **File Server System** ($895) for the ST is actually a dedicated IBM PC clone computer with a 20-megabyte hard disk. The file server can accommodate 63 STs linked to BMB's Imaginet.

BMB Compuscience, 500 Steeles Avenue, Milton, Ontario L9T 3P7. (416) 826-2516. FINAL.

Sig Hartmann, president of software for Atari Corp., calls **ST One Write** "the kind of software that will sell the ST computer." He's right. ST owners have been waiting for any accounting package—especially a small business accounting package.

Announced at the Spring COMDEX in Atlanta, **ST OneWrite Cash Disbursments** ($129.95) marks game company Sierra On-Line's first entry in the productivity software market. Based on the uncomputerized "one-write" or "pegboard" accounting system used in millions of small businesses, it uses ST graphics to visually recreate familiar "one write" checks, balance sheets and forms. Sierra will follow with accounts receivable and general ledger programs in the Fall.

Kids age 8-12 learn about the American work ethic, how to handle money and make change as America's favorite duck works to earn money to build a playgound in **Donald Duck's Playgound**, ($24.95) Sierra's second ST educational game.

Sierra On-Line, Inc., Coarsegold, CA 93614. (209) 683-6858. FINAL.

Designed by Lee Isgur, top Wall Street financial analyst and VP of Paine Webber, New York, **Isgur Portfolio System** helps both casual investors and full time professionals compile and manage information to make investment decisions. It instantly updates your personal stock portfolio with data from online services such as Dow Jones and CompuServe by utilizing **I * S Talk**, a complete telecommunications program included with the package. The price, $199.95 is $50 lower than the IBM-PC version and it utilizes the GEM interface.

If you make a mistake, you'll hear **Thunder!** This $39.95 writer's assistant package makes a 50,000-word real time spelling checker, abbreviations expander and a statistics report generator available from the desktop within other programs such as word processors and databases. The abbreviations expander will automatically expand any two stroke abbreviation into full form—turning US into United States for example. A document analyzer counts word statistics including a readability score based on the Flesch index, a test indicating how many years of schooling an average reader needs to understand what you've written. Coming soon: **Paperclip Elite**, the ST version of the popular 8-bit word procesor.

Batteries Included, 30 Mural Street, Richmond Hill, Ontario, L4B 1B5, Canada. (416) 881-9816. FINAL.

Regent Base ($99.95) is a full-function GEM relational database. Commands are in simple English and the GEM interface is used extensively, with windows, drop-down menus and mouse. The 100% machine language program uses all available memory, has 15 printer drivers and is not copy protected. Regent Base indexes multiple fields within a table and can sort three fields simultaneously. It is compatible for mail-merge with **Regent Word II** ($99.95), the word processor newly reissued in a full GEM version with a 30,000-word spelling checker. Owners of Regent Word I can upgrade to the new version for $25.

Regent Software, 7131 Owensmouth, Suite 45A, Canoga Park, CA 91303. (818) 883-0951. FINAL.

Software Toolshop Ltd. has converted its entire range of CP/M-80 software to the Atari 3 1/2-inch disk format, including **Prospero Pascal, Borland Turbo Pascal** and **Microsoft Macro 80**. All require the Atari Corp. CP/M emulator. For a catalog write:

Software Toolshop, 180 High Street North, Dunstable Beds LU6 1AT. Great Britain (0582) 699657. PRESS.

Action Pak (4in1) gives you four useful applications on a single $39.95 disk. Disk Labeler prints ST labels with as many

continued on next page

as 38 alphabetized file titles. Banner prints giant placards in any of five fonts and is compatible with DEGAS. Synfile Converter will transfer SynFile+ 8-bit database files into ST database files via a null modem. Typewrite is a line-at-a-time typewriter that installs as a desktop accessory and is always handy for addressing envelopes, filling out forms, or typing short memos.

Action Software, 69 Clementina Street, San Francisco, CA 94105. (415) 974-6638. FINAL.

The makers of the Pawn graphic adventure game announced **Starglider** ($44.95), a strategic simulation in three dimensions. This is the first of Firebird's Rainbird series of adventure games.

Firebird, 74 North Central Avenue, Ramsey, NJ 07746. (201) 934-7373. PRESS.

"It's definitely not a direct port of the 8-bit version of **Silent Service**," says John Fredrick at MicroProse. The $39.95 ST version of the best-selling submarine warfare simulation game utilizes ST sound, graphics and highly detailed maps that you can zoom in and out of.

MicroProse, 120 Lakefront Drive, Hunt Valley, MD 21030. (301) 667-1151. FINAL.

Dac-Easy, ($69.95) the IBM accounting package named InfoWorld's 1985 Product of the Year, has been ported directly to the ST. It includes general ledger, accounts receivable, accounts payable, purchase order, control billing, inventory and forecasting (but not payroll or taxes). It is the tool Dac Software Inc. uses to do its own multi-million-dollar-a-year accounting. FINAL.

Dac Software, Inc., 4801 Spring Valley Road, Building 110 B, Dallas, TX 75244. (214) 458-0038. FINAL.

Michtron has released several new products—for a total of 28 in their entire ST line. **The Personal Money Manager** ($49.95), a personal accounting package utilizes GEM; **Cornerman**, a Sidekick-style desktop utility includes clock, calculator, phone book and more; **DFT** ($49.95) transfers files between the ST and IBM PC; **DOS** Shell ($39.95) mimics the MS-DOS command structure with global commands; **Kissed** ($39.95) is an odd name for this a full screen editor and debugger; Destroy enemy spies in **Major Motion** ($39.95). Infiltrate enemy gold mines in **Gold Runner** ($39.95), a 63-screen color game. Or play **Time Bandits** ($39.95). This arcade adventure from England took eight months and 300K of machine code to create and "uses the ST graphics to the max" says Michtron president Gordon Monnier.

Michtron, 576 Telegraph, Pontiac, MI 48053. (313) 334-5700. FINAL.

Protect your rolling rodents with the **MousePad** ($9.95). This 9×11 inch piece of nylon-covered neoprene rubber gives the mouse ball a safe, smooth, dust-free surface to roll on with more traction and control than your lumpy, bumpy desk.

Mousetrak, Inc. 3047 St. Helena Way, St. Helena, CA 94574. (707) 963-8179. FINAL.

The slightly smaller **WestRidge Mouse Pad** ($8) is not just another pretty piece of rubber. It reduces fatigue, reduces mouse ball wear and enhances cursor control.

West Ridge Designs, 305 N.W. 12th, Portland OR 97209. (503) 248-0053. FINAL.

What a great idea. One printer, several "Plug n' Print" interfaces ($99 each) and the **Okimate 20 Color Printer** ($169) is compatible with many computers—including the ST. It prints more than 125 shades of color, creating high resolution pictures or overhead projection graphics on acetate. The Oki also has several built-in type fonts including fine print and superscripts, and prints 80 characters per second in draft mode, 40 cps in letter quality mode.

Okidata, 532 Fellowship Road, Mt. Laurel, NJ 08054. (609) 235-2600. FINAL.

Audio Light **Slideshows** in Christmas, General Interest and Halley's Comet themes ($15 each) are animated musical presentations created with the **N-Vision** program and Activision's **Music Studio**. (**Antic** uploaded the Christmas show, featuring traditional carols and scenery, onto CompuServe SIG*ATARI last December.) Halley's Comet uses an advanced version of N-Vision's **A-Light Slideshow** program (included with all three disks) to create a rudimentary but impressive form of animation by squeezing more picture files on the disk and speeding up the file display.

Audio Light, Inc., 146 Town Terrace, Suite 4, Los Gatos, CA 95030. (408) 395-0838. FINAL.

Henry's Fundamental BASIC is an easy-to-use fundamental BASIC language interpreter aimed at the home user. This $49.95 subset of **Philon Fast/Basic M** ($129), Philon's more sophisticated compiler, offers full syntax compatibility.

Philon, Inc., 641 Avenue of the Americas, New York, NY 10011. (212) 807-0303. FINAL.

STKey ($29.95) lets you program the ST function keys to accept customized commands for your application programs and access them from the desktop. **Diskmenu**, a $49.95 archive and backup utility, can also split large files between disks and recover lost disk space.

Solid Applications, Inc., 1333 Moon Drive, Yardley, PA 19067. (215) 736-2449. FINAL.

Atari ST Logo by Martin Sims ($16.95), a thick book packed with beginner-level Logo programming tutorials, is profusely illustrated with flow charts and photographs of programming examples as they appear on the screen. Includes information on how to create simple 3-D pictures in Logo, and tutorials describing how to program an electronic clock and an interactive logic game.

Hayden Book Company, 10 Mullholland Drive, Hasbrouck Heights, NJ 07604. (201) 393-6306. FINAL.

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*New ST product notices are compiled from information provided by the products' manufacturers. **Antic** assumes no responsibility for the accuracy of these notices or the performance of the product. Each mention is followed by a code word indicating that, at press time, **Antic** had seen a FINAL marketable version, near-final BETA, earlier ALPHA, incomplete DEMO, or PRESS release.*

SOFTWARE LIBRARY

Antic type-in listing section includes every full-length program from this issue. Listings are easier to type and proofread, easy to remove and save in a binder if you wish.

DISK SUBSCRIBERS: Programs for 8-bit Atari computers can be used immediately. Just follow instructions in the accompanying magazine articles. ST Owners: See monthly disk's ST Help File for instructions on how to transfer programs to 3-1/2 inch disk.

Antic program listings are typeset on the Star's SB-10 printer—from Star Micronics, Inc., 200 Park Avenue, New York, NY 10166.

TYPING SPECIAL ATARI CHARACTERS

Antic printed program listings leave a small space between each Atari Special Character for easier reading. Immediately below you will see the way **Antic** prints all the standard Atari letters and numbers, in upper and lower case, in normal and inverse video.

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
0123456789          0123456789
```

The Atari Special Characters and the keys you must type in order to get them are shown in the two boxes below.

NORMAL VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
♥	CTRL ,	●	CTRL T
	CTRL A		CTRL U
	CTRL B		CTRL V
	CTRL C		CTRL W
	CTRL D		CTRL X
	CTRL E		CTRL Y
	CTRL F		CTRL Z
	CTRL G		ESC ESC
	CTRL H	↑	ESC CTRL –
	CTRL I	↓	ESC CTRL =
	CTRL J	←	ESC CTRL +
	CTRL K	→	ESC CTRL *
	CTRL L	◆	CTRL .
	CTRL M	♠	CTRL ;
	CTRL N		SHIFT =
	CTRL O		ESC SHIFT CLEAR
♣	CTRL P		
	CTRL Q		
	CTRL R	◀	ESC DELETE
	CTRL S	▶	ESC TAB

INVERSE VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	⅄CTRL ,		⅄CTRL Y
	⅄CTRL A		⅄CTRL Z
	⅄CTRL B		ESC SHIFT DELETE
	⅄CTRL C		
	⅄CTRL D		
	⅄CTRL E		ESC SHIFT INSERT
	⅄CTRL F		
	⅄CTRL G		
	⅄CTRL H		ESC CTRL TAB
	⅄CTRL I		
	⅄CTRL J		
	⅄CTRL K		ESC SHIFT TAB
	⅄CTRL L		
	⅄CTRL M		
	⅄CTRL N		⅄CTRL .
	⅄CTRL O		⅄CTRL ;
	⅄CTRL P		⅄SHIFT =
	⅄CTRL Q		ESC CTRL 2
	⅄CTRL R		ESC CTRL DELETE
	⅄CTRL S		
	⅄CTRL T		
	⅄CTRL U		ESC CTRL INSERT
	⅄CTRL V		
	⅄CTRL W		
	⅄CTRL X		

Whenever the CONTROL key (CTRL on the 400/800) or SHIFT key is used, *hold it down* while you press the next key. Whenever the ESC key is pressed, *release* it before you type the next key.

Turn on inverse video by pressing the Reverse Video Mode Key. Turn it off by pressing it a second time. (On the 400/800, use the Atari Logo Key ⅄ instead.)

Among the most common program typing mistakes are switching certain capital letters with their lower-case counterparts—you need to look especially carefully at P, X, O and 0 (zero).

Some of Atari Special Characters are not easy to tell apart from standard alpha-numeric characters. Usually the Special Characters will be boxed. Compare the two sets of characters below:

SPECIAL			STANDARD		
		CTRL F	/		/
		CTRL G	\		SHIFT +
		CTRL N	—		SHIFT -
		CTRL R	-		–
		CTRL S	+		+

HOW TO USE TYPO II

TYPO II is the improved automatic proofreading program for **Antic's** type-in BASIC listings. It finds the exact line where you made a program typing mistake.

Type in TYPO II and SAVE a copy to disk or cassette. Now type GOTO 32000. When you see the instruction on the screen, type in a single program line **without the two-letter TYPO II code** at left of the line number. Press [RETURN].

Your line will reappear at the bottom of the screen with a two-letter TYPO II code on the left. If this code is not exactly the same as the line code printed in the magazine, you mistyped something in that line.

To call back any line previously typed, type an asterisk [*] followed (without in-between spaces) by the line number, then press [RETURN]. When the complete line appears at the top of the screen, press [RETURN] again. This is also the way you use TYPO II to proofread itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000.

To remove TYPO II from your program, type LIST "D:FILENAME",0,31999 [RETURN] (Cassette owners LIST "C:). Type NEW, then ENTER "D:FILENAME" [RETURN] (Cassette—ENTER "C:). Your program is now in memory without TYPO II and you can SAVE or LIST it to disk or cassette.

Owners of the BASIC XL cartridge from O.S.S. type SET 5,0 and SET 12,0 before using TYPO II.

ype the
l Codes!

Don't type the
TYPO II Codes!

```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "↖":POSITION 11,1:? "TYPO II "

EM 32050 TRAP 32040:POSITION 2,3:? "Type
   in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
   $:IF LINE$="" THEN POSITION 2,4:LIST B
   :GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
   E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
   GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$):POSITION 1,3:? " ";
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "↖":POSITION 11,1:? " TYPO II 
   ":POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINE$:IF
   LINE$="" THEN ? "LINE ";B;" DELETED":G
   OTO 32050
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
   (LCODE)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press  RETURN  and edit line a
   bove.":GOTO 32050
```

ultimate type-in character editor

ULTRAFONT

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LISTING 1

Don't type the
TYPO II Codes!

```
WT 10 REM CHARACTER FONT
YO 20 REM BY STEVEN LEE
GL 30 REM (c) 1986, ANTIC PUBLISHING
VE 40 DIM DEV$(1),DAT$(91)
MX 50 GRAPHICS 0:? :? "CASSETTE or DISK";
   :INPUT DEV$:IF DEV$<>"C" AND DEV$<>"D"
    THEN 50
JB 60 IF DEV$="C" THEN OPEN #1,8,0,"C:":F
   OR I=1 TO 35:READ A:PUT #1,A:NEXT I:GO
   TO 80
ZY 70 OPEN #1,8,0,"D:CHARFONT.OBJ":PUT #1
   ,255:PUT #1,255:PUT #1,216:PUT #1,34:P
   UT #1,109:PUT #1,61
MK 80 RESTORE 1000:TRAP 200:LINE=1000:? "
   ↖":? "LINE "
OW 90 POSITION 7,1:? LINE;:READ DAT$:L=LE
   N(DAT$):IF L<>90 AND L<>22 THEN 190
LD 100 IF LINE<>PEEK(183)+PEEK(184)*256 T
   HEN ? " IS MISSING!":CLOSE #1:END
CS 110 SUM=0:FOR I=1 TO L-1 STEP 2
LX 120 DIGIT=ASC(DAT$(I,I))-48:DIGIT2=ASC
   (DAT$(I+1,I+1))-48
EJ 130 BYTE=(DIGIT-(DIGIT>9)*7)*16+(DIGIT
   2-(DIGIT2>9)*7)
IE 140 PUT #1,BYTE:SUM=SUM+BYTE:NEXT I
ZQ 150 READ CHECK:IF CHECK<>SUM THEN 190
NR 160 LINE=LINE+10:IF L=90 THEN 90
FZ 170 IF DEV$="C" THEN FOR I=1 TO 71:PUT
    #1,0:NEXT I:CLOSE #1:END
PA 180 PUT #1,224:PUT #1,2:PUT #1,225:PUT
    #1,2:PUT #1,146:PUT #1,37:CLOSE #1:EN
   D
JB 190 ? " NEEDS CHECKING!":CLOSE #1:END
KH 200 ? :? "ERROR #";PEEK(195):CLOSE #1:
   END
UH 210 DATA 0,54,181,34,215,34,169,60,141
   ,2,211,169,0,141,231,2,133,14
XH 220 DATA 169,80,141,232,2,133,15,169,1
   46,133,10,169,37,133,11,24,96
FW 1000 DATA 00003C66666E606000006E666666
   667E00003C7E6666667E00007C666666667E00
   007EDB1818181800003C666E,3199
BM 1010 DATA 60607C00003C7E666666666000066
   6666767E7E60606066663C00007E66666666E6
   00007E66666666667000001818,3587
JG 1020 DATA 1818181800007C60606E663C0000
   7C60606060E0000066666667E3C00007E7E6E
   6666E60000006060 7E66667E,3454
KU 1030 DATA 00000066663C181800000000000000
   1E306000000000000000C18000000000000C1838
   6060301C0606CC7818FE3030,1592
```

continued on next page

```
II 1040 DATA 7060603C001E66ECF8C0663C0000
   6666666C383000003C6666CCCCCC303070606O
   E0E37EFCCCCCCFCC0C0C0FC,5649
EJ 1050 DATA CCCCCCFCCCCCCCFCC0C0FCC0C0C0
   FCFCC0C0FC0C0C0CFC554140550101415515II
   0101010101015011010101,4964
LW 1060 DATA 01015004040454040404544l4141
   544141415010000000000000070704F43394F43
   39CF4339004D0040000000000,1946
CC 1070 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   0000000000000000000000000,0
CF 1080 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   0000000000000000000000000,0
VU 1090 DATA 0000000000000000000000000000
   00000300F0F0F0F0F0F0F0F0F0F0F0F0F0F0F
   0F0F0F0F0F0F0F0F0F0F0F0F,453
NK 1100 DATA 0F0F0F0F8F300202020202020202
   41002470707070707070707042CA240270020270
   707070707070707070707004,3034
OL 1110 DATA 41AB24000000000000005B005C005D
   005E005D005B005F0060005E0000000600006100
   62005F000000000000000000,1497
TO 1120 DATA 00000000630064006400650064O0
   63006600670065000000680069006A00660000
   0000000000000000000000000,1322
XL 1130 DATA 0000000000000000006D6E000000
   00006F00000000000000000000000000000000
   00000000000000000000000000,330
IO 1140 DATA 006B6C00707172737274007572 72
   00000000000000000000000000000000000000
   00000000000000000F6F7F8F9,2234
OO 1150 DATA F9007A7B7C7D7E7B7F000000000O
   0000000000000000000D8A23FA90095B0CA10FB
   E89D0006E8D0FA9D0020E8E0,4253
SE 1160 DATA 0890F8A510297F85108D0ED2A920
   8DF40285D7A90885D8A204BD1D399DC402CA10
   F7A9AB8D3002A9248D3102AD,5087
TO 1170 DATA 1FD0C906D0F9AD1FD04907D0F98D
   2F028D00D48D0ED4A28020E533A9048D07D4A9
   028D1DD0A9018D6F02A9488D,5252
DZ 1180 DATA C102A97B8D01D0A90085B6A98085
   B720B63720E938A21020EB38A9039D4203A91C
   9D4403A9399D4503A9049D4A,4707
BM 1190 DATA 032056E4A9079D4203A9009D4803
   9D4903A002A200BD3C39990C24C8E8E00790F4
   AD3E391869288D3E398D4139,4251
KC 1200 DATA AD3F3969008D3F398D4239C07290
   D7A9408D0E24A9CD8D7B24A9CD8D0002A9308D
   0102A204BD22399DC402CA10,4583
YM 1210 DATA F7A9008D3002A9248D3102A92A8D
   2F02A9C08D0ED4A90185CE85CF206B374CF426
   EEC002ADFC02C9FFD01DA908,5263
LK 1220 DATA 8D1FD0AD1FD00AAABD5E3D85B0BD
   5F3D85B16CB000200B314CAA26C927D012A27F
   8E1FD08E0AD4CA10F78EFC02,5301
TH 1230 DATA A980D02AC93CF01DA2102056E4C9
   1BD01D20E93820D234202F36A9E085C8A90085
   B820AA32A2FF8EFC029A4CAA,5491
IS 1240 DATA 26A21ADD0D3DF005CA10F8308D8A
   0AAABD283D85B0BD293D85B16CB000ADFC02C9
   FFF0F9C927F0F5C93CF0F1A2,6224
RO 1250 DATA 102056E485C4C91BF0AD204C3560
   20D234A5B8490185B820BE334CAA26200035A0
   8BA23920963320EE33204034,4485
JB 1260 DATA A90085D4A5B738E5B60A26D40A26
   D40A26D485D3A5B6208B34A4B0A6B120F33520
   AA324CAA26200035C6BFA091,5349
UV 1270 DATA A23920963320EE3320403420B637
   20AA324CAA26200035A099A23920963320EE33
   204F34A007B1B091B28810F9,4304
DL 1280 DATA 20AA324CAB2720EB34A00484BB20
   5336A4BB8810F6A91585BFA90285C0A006A23B
   209633A91685DB202735A5C5,4917
QR 1290 DATA 85BBC905D0062017354CAA26A910
   85BFA0D9A239209633AE8402F0DBA204A5D6D0
   02CACABD2739209849488DC1,5209
TP 1300 DATA 02A4BBB92739AE7802E007D00318
   6910E00BD00338E910E00DD00338E902E00ED0
   03186902992739205336A260,4263
DU 1310 DATA 20E533ADFC02C91CD0B34CEB26A9
   0085BEA4CF84BBA00784BAA90085BCA6BEBD82
   3D208B34A4BAB1B0E6BCA4BC,6293
DC 1320 DATA 99DF00E8C4CE90EAA4D0A6CE36DF
   CAD0FBA6CE76E6CAD0FB88D0EFA5CE85BCA6BE
   BD823D208B34A4BCB9E600A4,7616
VD 1330 DATA BA91B0E8C6BCD0EC8810B2A5BE18
   65CE85BEA4BB88D0A220AA324CAA26A5CE85BC
   A90085EEA4CF84BAC884EFE6,7023
NK 1340 DATA EEC6EFA5EF85BD209634A5EE85BD
   20BD34A6BEBD823D208B34A90085B6A90485B7
   A200A4B6B1B095DFC8E8E004,6458
RC 1350 DATA 90F6A6B6A5B718690438E90148A8
   B1B2488AA86891B0E868C5B7D0EDA203A4B7B5
   DF91B2C8CA10F8C6BAD00AC6,6773
SL 1360 DATA BCD09720AA324CAA26A900C5B6D0
   9685B7A90485B6D0B020BE33200035A09EA239
   209633A92385BFE6C0A91785,5580
FN 1370 DATA DB203835A5C3207732E6C5A5C548
   E6BFE6BF203835A5C3207732A4C5C884CF6885
   CE207E35206B37A5CE85BCA5,5931
LJ 1380 DATA CF85BD20BD34A6BE88ED629203F
   3620BE33A90018690148208E36A5C58DA839A5
   C68DA939200035C6BFA0A3A2,5225
MM 1390 DATA 39209633A90085BA20F6336848AA
   CAA5B79D823DA90085C520B135200F3720DA32
   68C90190C14C4B27200035C6,4630
QU 1400 DATA BFA0ABA23920963320EE33204F34
   A007B1B048B1B291B06891B28810F320AA324C
   DC29A5B8F016207E3520D234,5253
DX 1410 DATA A00084CD84CC20DA32A00E84CA20
   97354CAA26A5B8F028207E3520D234A5D138E9
   1085CDA4D18884CCA03BA5CF,5748
TG 1420 DATA C901D006A90085CDA02384CA20DA
   322097354CAA26A5CE85BCA5CF85BD20BD34A6
   BE8AA8BD823DC4BEF008C8D9,6024
NF 1430 DATA 823DF010D0F4208B34A007B1B049
   FF91B08810F7CA10DE20AA324CAA2620EB34E6
   BFC6C0A90E85B4A93B85B5A9,6003
FT 1440 DATA 0385BAA92185DD205F35A91585DB
   202735201F36207E35A6C586D6BC3139BD2C39
   99A0248810FABC3139A94199,4779
XR 1450 DATA A124A90099A224A92499A324200F
   372097352017354CAA26A920C5D7D002A9E085
   D720AA324CAA2620EB34C6C0,4813
QC 1460 DATA A96085B4A93B85B5A90385BAA919
   85DD205F35A91385DB202735A220A5C5F00AC9
   01F004E8E8D002A2E08EF402,5703
FN 1470 DATA 4C012BA90185C520B13520AA324C
   AA26202F36A900F0EE200035A0B2A239209633
   20EE332040320EB34C6C0A9,4420
QZ 1480 DATA B185B4A93B85B5A90285BAA90A85
   DD205F35A91285DB202735A5C5D07BA91085DF
   A90C85E0A90085C0202F36A5,5462
WW 1490 DATA B6208B3469C085B3A5B085B2A007
   B1B0D1B2D0058810F7303120EA37A9DB8D7C3A
   A90085BFA5B6208E36A5C520,5776
RZ 1500 DATA 7732E6BFA5C6207732E6BFA5C720
   7732E6BFE6BFA058A23A209633E6C0E6B6A5B6
   C5B7900DA5C0F003202D2720,6149
QM 1510 DATA 17354CAA26A5C0C904909A202D27
   4C6D2BA92085DFA92C85E020F234A031A23A20
   9633A20E209538A5BF38E90E,4751
QV 1520 DATA F0EAC906B0E6C905D007AE643AE0
   17B0DB85DE20F234A03EA23A209633A91285DB
   202735A6DEBD633A09209DCB,5636
WV 1530 DATA 39CAD0F5A000A6DEA5C50A85DBD0
   0EB9BE399DCC39E8C8C00690F4B00CB9C4399D
   CC39E8C8C00890F420F234C6,6662
AW 1540 DATA BFA009A23A209633202E38A220A9
   039D4203A96E9D4403A93D9D4503A9089D4A03
   A9809D4B032056E410034CF4,4133
AY 1550 DATA 38A5B6208B3469C085B3A5B085B2
   A007B1B0D1B2D0058810F7306EA220A90B9D42
   03A9CC9D4403A9399D4503A9,5389
DA 1560 DATA 061865DE65DB9D48032056E420EA
   37A99B9D593AA220A9099D4203A95D9D4403A9
   3A9D4503A9FF9D48032056E4,4746
GH 1570 DATA 10034CF438A6DECACA1013A00BB9
   CC3999CD398810F7A9308DCC39E8E6DEFECC39
   BDCC39C93A9007A9309DCC39,5966
LG 1580 DATA D0D9E6B6A5B6C5B7B0034C842C20
   E9382017354CAA26200035A0B8A239209633A9
   0085BA20F633A5B785B620EB,5336
HA 1590 DATA 34C6C0A050A23A209633A5B62077
   32A5B6208E36E6BFA200E6BFB5C5207732E8E0
   0390F4A90285BF85C0A21FA9,5870
NO 1600 DATA 009D5D3ACA10FAA058A23A209633
   A207209538A6BFE007F053A005A200A90095DF
   A90385BAB9583AC90CF053B9,5205
TP 1610 DATA 583A290F1875DF95DFC6BA3045B9
   593AC90CF01016DFB5DF16DF16DF1875DF95DF
   C8D0DBC8C8E8E00890C5A5B6,6294
CV 1620 DATA 208B34A000B9DF0091B0C8C00890
   F620DA32E6B6A5B630034C352DA90085B92017
   354CAA26A90D85BFA90385C0,5068
AX 1630 DATA A089A23A209633202D274C352DA5
   CE85BCA90185BD209634E6BD20BD34A6BEBD82
   3D208B34A5BDC902D006A000,5040
MR 1640 DATA B1B285C5A001B1B28891B2C8C8C0
```

```
0890F5A4BD88C4CFB00BA000B1B0A00791B24C
002EA007A5C591B2C6BCD0B7,6482
TI 1650 DATA 20AA324CAA26A5CE85BCA5CF85BD
209634C6BDF00B20BD34A6BEBD823D208B34A4
BDC8C4CFD006A007B1B285C5,6048
LZ 1660 DATA A006B1B2C891B2888810F7A5BDF0
0BA007B1B0A00091B24C532EA000A5C591B2C6
BCD0B920AA324CAA26A5CF85,6057
KL 1670 DATA BDA90785BA1808A5CE85BC209634
4CBB2E20BD34A6BEBD823D208B34A4BAB1B028
2A0891B0C6BCD0E828B1B269,5623
WZ 1680 DATA 0091B2C6BA10D1C6BDD0C920AA32
4CAA26A5CF85BDA90785BA1808A90185BC2096
344CFC2E20BD34A6BEBD823D,5593
OC 1690 DATA 208B34A4BAB1B0286A0891B0E6BC
A6BCCAE4CE90E3289006B1B2098091B2C6BA10
CAC6BDD0C220AA324CAA26A9,6281
PA 1700 DATA 08D002A90485D84CAA26A90285BB
A9C585B4A93B85B520EB34A90085BF85C0A904
85BAA92985DD205F35A5BBC9,5662
RX 1710 DATA 02D02FA91385BFA90285C0A96B85
B2A93985B3208332E6BFA97385B2A93985B320
8332E6BFE6BFA97B85B2A939,6041
VW 1720 DATA 85B3208332202D27C6BBD0B32017
354CAA2620EB34A01AA23A209633202D27A5C3
C91190F7C915B0F309208D29,4712
YK 1730 DATA 3A202F36A90085BF85C0A220A903
9D4203A9289D4403A93A9D4503A9069D4A0320
56E410034CF438A9059D4203,4044
LZ 1740 DATA A96E9D4403A93D9D4503A9149D48
03A2202056E410034CF438A200BD6E3DC99BF0
0D204C35A5C3207732E6BFE8,4828
FH 1750 DATA D0ECA914C5BFB002A90085BFD002
E6C0AD6F3DC920F00C20E938202D272017354C
AA26A5C0C90390B9202D27A9,5158
OF 1760 DATA 0085C0202F364CE92F20EB34A0E9
A239209633202E38A90785C5A220A9049D4A03
A9039D4203A96E9D4403A93D,4354
KT 1770 DATA 9D4503A9809D4B032056E410034C
F438A5C59D4203A9009D44039D4803A9209D45
03A9049D49032056E410034C,3996
LY 1780 DATA F438A9279D4403A9399D4503A905
9D4803A9009D49032056E420E93820DA322017
354CAA2620EB34A0F9A23920,4337
VD 1790 DATA 9633202E38A90B85C5A220A9089D
4A03D08848AD0BD4C920B00FA9348D0AD48D17
D0A90E8D18D06840C947B00F,4829
BN 1800 DATA A90A8D0AD48D17D0A9948D18D068
408A48A2048D0AD4BD27399D16D0CA10F768AA
6840A5B8F00FE6D53008A9E0,5586
IT 1810 DATA 20D4344C1E3120D234AD1C02F007
A5DCC90FF00160A5D88D1C02A5B8D06DAD8402
D02AA28020E533AD8402F0FB,5308
PX 1820 DATA 20AA34A6BE20E0349D823DA90085
C520B135200F3720DA3220BE33A90185B860AD
780285DCC90FF0344820BE33,4786
GR 1830 DATA A6C1A4C2684AB005881002A0034A
B007C8C0049002A0004AB005CA1002A21F4AB0
07E8E0209002A20086C184C2,4726
MD 1840 DATA 20BE3360AD8402D02F20AA34A6BE
BD823D208B34A5CC2907A8A5CB2907AA38A900
6ACA10FC51B091B020AA32AD,5119
MJ 1850 DATA 7802C90FD005A2C020E533AD7802
85DC4846DCB023A4CC88301E207E35C6CC2097
35A4CAC00ED008C6CD20C936,5347
HB 1860 DATA 4C013220D2348888884CA46DCB0
25A4CCC8C4D1B01E207E35E6CC209735A4CAC0
3BD008E6CD20D8364C2A3220,5496
EY 1870 DATA D234C8C8C884CA46DCB021A6CBCA
100DA5D00A1865D065C985C9A6D0CA86CBA5C9
38E90385C91869308D00D046,6148
NS 1880 DATA DCB020A6CBE8E4D0900BA5D20A0A
38E90385C9A20086CBA5C918690385C969308D
00D06885DC6020B03385B2A5,5762
GN 1890 DATA B11865C885B3206334A0008C9032
9848B1B2A00091B0981869288D903268A8C8C0
0790EAE6B1B1B2A01891B060,5619
YL 1900 DATA A90085BF85C0A5D785C8A2008A20
7732E6BFA5BFC9209006A90085BFE6C0E810EB
A9E085C8A6B8F004CAF00460,6452
IX 1910 DATA 20BE33A90085BCA5CD29078D1333
A5CD4A4A4A85BDA5BC0A85ED0A1865ED65D285
B2A94085B3A91085D3E6BCE6,5755
IR 1920 DATA BD20BD34C6BCA6BEBD823D208B34
A0009848A2002901F001CA86E7B1B085DAA202
A0FFA95645E706DA900209FC,5672
XL 1930 DATA 06DA0890020903C891B2A9A545E7
28900209F006DA089002090FC891B2A96A45E7
28900209C006DA9002093FC8,4511
MX 1940 DATA 91B2CAD0C468A8C6D3F021A5B218
692885B29002E6B3C8C008B0034C1433A5BDC5
CFB008A9008D13334C0133E6,5667
RP 1950 DATA BCA5BCC5CEB0034CDE326084B486
B5A00084BAA4BAB1B4C9DBF009207732E6BFE6
BAD0EF60A00084B10A0A26B1,6333
KD 1960 DATA 0A26B185B060A5C185BFA5C285C0
206334A0F0B1B049FF91B09838E928A8C0D8D0
F1E6B1A018B1B049FF91B060,6776
NJ 1970 DATA A00088D0FDCAD0FA60A92085C8A9
0185BAAD8402D030A28020E533AD8402F0FBA5
BA4901AAA92385BFA90285C0,6118
NL 1980 DATA 20E03495B6207732C6BA10D8A9E0
85C8203F36A9FF8DFC0260206231ADFC02C91C
D0034CEB26A27020E5334CF6,5549
QM 1990 DATA 33A5B7C5B6B006A6B685B686B7E6
B760A5B720B03385B2A5B118692085B3A5B620
8B3460A98085B0A94285B1A4,6163
DW 2000 DATA C0F010A5B018694085B0A5B16901
85B188D0F0A5B01865BF85B09002E6B16020B0
33A5B118692085B16020BD34,5689
FM 2010 DATA A6BEBD823D208B34A5B085B2A5B1
85B360A201B5CB4A4A4A18690195BCCA10F320
BD3460A900A4BD88F0061865,5456
IX 2020 DATA CE88D0FA1865BC85BEC6BE60A900
A4CA9900069901069902060A5C20A0A0A0A0A
1865C16020D234A5B885B9A9,4984
WI 2030 DATA 0285B885BFA90185C0202F3660A5
B8F00A20D23420BE33A90085B8A92285BFA901
85C060202F3620AA32A5B985,5005
AM 2040 DATA B8D00320BE3360E6DBA91085BFA9
0385C0A0E1A239209633202D27A5C3C91190F7
C5DBB0F3290F85C5C6C560C9,6054
TE 2050 DATA 20B005694085C360C960B00338E9
2085C360A5BF8D6735A6BAA90285BF209A33E6
C0A5B41865DD85B49002E6B5,5747
MH 2060 DATA CAD0E960A90048A5CCA4D6C002F0
05C004F0014A186952AA689D800660A97E2080
35A200C002F00BC004F007A5,5272
CK 2070 DATA CC4A9002A2208E1CD060A5CE85BC
A5CF85BD20BD34E6BEA9A685B2A93D85B3A200
BD823D208B34A007A5C5F007,5900
CQ 2080 DATA B1B291B04CDF35B1B091B28810EE
A5B218690885B29002E6B3E8E4BE90D66084B0
86B1A00098C6D3A6D3E0FFD0,6948
PU 2090 DATA 04C6D4300991B0C8D0EFE6B1D0EB
60A98085D3A90285D4A000A24020F335A94085
D3A90185D4A080A24720F335,6197
MR 2100 DATA 60A90085D3A90585D4A080A24220
F33560A90285C0A92185BFA0D9A239209633C6
C0D0F160B92739208E36A900,5532
AN 2110 DATA AAC0039005888888A21586BF84C0
A4BBF0061869148 8D0FB1869A285B4A93A6900
85B5A202A012B5C591B488CA,5728
XO 2120 DATA 10F8209A3360A21086C5C9649006
E964E6C5D0F6A20FE838E90A10FA18691A86C6
85C7A5C5C910D017A5C6C910,5954
HH 2130 DATA D007A6C7A90085C78A85C5A5C785
C6A90085C760A9D885E7A9FF85E8A058A2424C
E436A92885E7A90085E8A000,6480
AE 2140 DATA A24084B086B1A20FA5B01865E785
B2A5B165E885B3A027B1B291B08810F9A5B285
B0A5B385B1CAD0DF20DA3260,6628
ND 2150 DATA A20086BC86BDA5D6C903B012A006
84C5A016A5BD0A0A0A85ED0A0A4C3B37A00384
C5A00BA5BD0A0A85ED0A0A18,4676
IT 2160 DATA 65ED65BC698085B0A947690085B1
BD823D91B0A4C5098091B0E8E6BCA5BCC5CE90
B7A90085BCE6BDA5BDC5CF90,6888
MF 2170 DATA AB6020103 6A90085CB85CC85CDAA
9DA63DE8D0FAA2239D823D9DA63ECA10F7A5CE
0A0A0A85D0A5CF0A0A0A85D1,5674
SX 2180 DATA A6CECABD363985D20A0A85C91869
308D00D0A90E85CA20DA32200F372097356 0A5
B620B03385B2A5B11869E085,5094
FF 2190 DATA B3A5B1692085B1A6B6A007B1B291
B08810F9A5B21869088 5B285B09004E6B3E6B1
E8E4B790E360A21FA9009D5D,6346
EA 2200 DATA 3ACA10FAA90585DDA000B1B0208E
36A6DDA5C505DF9D583AA5C6F01005DFE89D58
3AA5C7F00605DFE89D583AC8,6030
US 2210 DATA C008B00CE8A5E09D583AE886DD4C
FA3760A98385B2A93985B3208332202D27A6BF
A5C3C97ED00FCAE01190F0A9,6117
PO 2220 DATA 00207732C6BF4C2E38C99BD02D9D
5D3DA900207732AD6E3DC944F01DC943F019C9
50F015A90F85BFA90385C0A0,5180
RN 2230 DATA 7EA23A209633202D274CF42660E0
20B0B1207732A5C49D5D3DE6BF4C2E3886BC86
BFA98385B2A93985B3208332,5239
```

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JI 2240 DATA 202D27A6BFA5C3C97ED012E4BCF0
   F1A900207732CAA9009D563A4C9738C99BF019
   C90CF008C91090D7C91AB0D3,5880
IZ 2250 DATA E026B0CF9D563A207732E8D0B9A9
   0C9D563AA9002077326 0A220A90C9D42032056
   E46098208E36A5C68D9F3AA5,5029
KR 2260 DATA C78DA03AA90F85BFA90385C0A098
   A23A209633A9FF8DFC02202D274CF4264BFA0C
   007A00180A00460028CA9446,4644
UZ 2270 DATA 00020405060707070307030E0E08
   0802020D4D00404D00400000000000000003C0
   000000003C000000000003C0,979
DE 2280 DATA 00000000003C000000000003C00000
   000000000001B1B1B33E30000B0B0B0B098
   8E0000FFC3C7CFDFFF00FFC3,3558
RY 2290 DATA C3C3C3C3C3FF222C212E2BDB3225
   33342F3225DB232F3039DB27322924DB273229
   24000000DB333729342328DB,3861
ZB 2300 DATA 3732293425DB292E303534DB2044
   41544120202 02E425954452020202020202020
   2020202020200000000000000,2125
EU 2310 DATA 00DB23686F6963651FDB2C6F6164
   0066696C656E616D650D00DB33617665006669
   6C656E616D650D00DB377269,4147
GV 2320 DATA 7465006669 6C656E616D650D00DB
   247269766500 6E756D6265721FDB44313A2A2E
   3F3F549B2C696E65006E756D,3979
QB 2330 DATA 6265721FDB110E0022617369 6300
   6F7200120E002D2CDB296E7075741A00DB2421
   3421000000000000000000000,2504
NF 2340 DATA 00000000000000000000000000000
   000000000000000000DB2E6F00646576696365
   01DB2572726F7200696E0064,2025
ZO 2350 DATA 61746101DB2572726F7200111218
   DB110E00236F6C6F72003265670E00101D0000
   00DB120E00236F6C6F720032,2901
CP 2360 DATA 65670E00111D000000DB130E0023
   6F6C6F72003265670E00121D000000DB140E00
   236F6C6F72003265670E0013,2329
DI 2370 DATA 1D000000DB150E00236F6C6F7200
   3265670E00141D000000DB160E0025786974DB
   110E00277261706869637300,2747
VP 2380 DATA 10000000000000140E0027726170
   686963730011DB120E00216E746963006D6F64
   6500140000000000150E002772,2195
QT 2390 DATA 6170686963730012DB130E00216E
   746963006D6F64650015DB110E002E65770063
   68617261637465720073 6574,3596
TJ 2400 DATA 00000000DB120E0032656775 6C61
   7200636861726163746572007365 74DB130E00
   2C6F7765720068616C66006F,3477
YC 2410 DATA 660063686172616374657200 7365
   74DB110E0033637265656EDB120E0024657669
   6365DB2500256469740000 00,3626
LI 2420 DATA 002200226C616E6B00002900296E
   76657274000000000005C00336866003570DB27
   002772696400000000230023,2331
FN 2430 DATA 6F7079000000260026 6C69700000
   0000000005D003368660024 6EDB3500356E64
   6F00000000380033776 97463,2433
BN 2440 DATA 680000000C0000296E7665727365
   005E003368660 02C66DB1E0035706461746500
   00280C1F0028656C70003200,2635
NJ 2450 DATA 326573746F7265000000005F0033
   6866003274DB2D002D6F646573000000000000
   003700377269746500246174,2757
FY 2460 DATA 610000002F3034292F2E00246972
   00DB2B00236F6C6F72000000000000240024
   61746100296E70757400000,2252
JY 2470 DATA 33252C252334002C6F6164DB3300
   33686F770073657400000000 2100346F700000
   00000000000000003334 2132,2089
RN 2480 DATA 3400003361 7665DB30003072696E
   74007365740000 0003A00226F74746F6D000000
   000000001 10C12000000 3370,2376
AJ 2490 DATA 656564DB3F4832312A2B3D2D4457
   3E5550534D805A41584749464B43524245302F
   302F292F252FDD2E9C2E4B2E,3384
TN 2500 DATA F82D202D322B2B2B1E2BE92AD92A
   842A4F2A202A032ADC294329C2285828CA27AB
   2790275A274B27CB26CB26CB,3863
ZY 2510 DATA 26922FCB263D30B330CB26,1049
```

no more disk disorganization

FILE MASTER

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LISTING 1

Don't type the TYPO II Codes!

```
FM 10 REM FILE MASTER - VERSION 5.0
UB 20 REM BY JASON WORLEY
GL 30 REM (c) 1986, ANTIC PUBLISHING
NP 50 GOTO 2580
PL 60 C=INT(C/3)+1:FOR A=1 TO COUNT-C:LC=
   A*20-20+P
FJ 70 IF AREA$(LC,LC+L-1)<=AREA$(LC+(20*C
   ),LC+(20*C)+L-1) THEN 120
TU 80 SAV$(1,20)=AREA$((A+C)*20-19):B=A
CG 90 AREA$((B+C)*20-19,(B+C)*20)=AREA$(B
   *20-19):B=B-C
JR 100 IF B>0 THEN IF SAV$(P,P+L-1)<AREA$
   (B*20-20+P) THEN 90
RD 110 AREA$((B+C)*20-19,(B+C)*20)=SAV$(1
   ,20)
JA 120 NEXT A:IF C>1 THEN 60
ZD 130 RETURN
LJ 140 REM PRINT LABEL SUBROUTINE
YV 150 TRAP 180:? "Disk Name";:INPUT D1$
VN 160 LPRINT D1$:LPRINT "Disk #";DN
GK 170 FOR X=1 TO 4:LPRINT :NEXT X:RETURN
JN 180 ? :? "Make sure printer is on and
   connected":GOSUB 220:POP :GOTO 680
KT 190 REM SUBROUTINE FOR SOUNDS
BV 200 TONE=14:GOTO 230:REM PROMPT TONE
UZ 210 TONE=2:GOTO 230:REM ATTEN TONE
IO 220 TONE=4:REM DANGER TONE
NL 230 FOR Z=1 TO 15:SOUND 0,10,TONE,12:N
   EXT Z
VW 240 FOR Z=39 TO 1 STEP -1:SOUND 0,10,T
   ONE,Z/3:NEXT Z
RI 250 SOUND 0,0,0,0:RETURN
QZ 260 REM
ZI 270 ? "■   No records in memory!":GOSU
   B 220
NO 280 FOR X=1 TO 200:NEXT X:GOTO 1950
DA 290 REM SORT SUBROUTINE
JI 300 IF COUNT=0 THEN GOTO 270
RE 310 TRAP 40000:N=3:CLOSE #4:OPEN #4,4,
   0,"K:"
ZN 320 ? "■Total number of records is ";C
   OUNT
VF 330 ? "Sort by:"
RJ 340 FOR V=0 TO 4
CW 350 POSITION 12,V+3:? SR$(V*14+1,V*14+
   14):NEXT V
LT 360 POSITION 12,N:? INSR$((N-3)*14+1,(
   N-3)*14+14)
JN 370 POKE 764,255:GET #4,CH
MO 380 IF CH=45 THEN IF N>3 THEN N=N-1:PO
   SITION 12,N+1:? SR$((N-2)*14+1,(N-2)*1
   4+14):GOTO 360
PU 390 IF CH=45 THEN POSITION 12,3:? SR$(
   1,14):N=7:GOTO 360
YN 400 IF CH=61 THEN IF N<7 THEN N=N+1:PO
```

```
   SITION 12,N-1:? SR$((N-4)*14+1,(N-4)*1
   4+14):GOTO 360
NN 410 IF CH=61 THEN POSITION 12,7:? SR$(
   57,70):N=3:GOTO 360
FP 420 IF CH<>155 THEN 360
NQ 430 IF N=3 THEN L=3:P=12
LR 440 IF N=4 THEN L=1:P=20
QM 450 IF N=5 THEN L=14:P=1
SE 460 IF N=6 THEN L=12:P=4
TE 470 IF N=7 THEN L=3:P=16
HO 480 POSITION 2,10:? " Sort will take "
   ;INT(COUNT*(COUNT/500)+6);" seconds "
NV 490 FOR X=1 TO 200:NEXT X:POKE 559,0:R
   EM TURN OFF SCREEN
KY 500 TRAP 40000:C=COUNT
UV 510 GOSUB 60
QS 520 POKE 559,34:? " Sort completed "
TI 530 GOSUB 210:REM ATTN SOUND
QP 540 FOR Z=1 TO 200:NEXT Z:RETURN
RA 550 REM
ZQ 560 ? :? "Press [RETURN] to continue..
   .";:INPUT #16,D$:RETURN
UZ 570 ? :? FNC$;" Aborted by request.":G
   OSUB 560:RETURN
PD 580 REM ADD RECORDS SUBROUTINE
YO 590 ? "█Do you wish to print disk labe
   ls";:INPUT D$:IF D$="Y" THEN LABEL=1
ZH 600 IF LABEL THEN ? "Ready printer, pr
   ess [RETURN].":INPUT #16,D$
WQ 610 ? "Do you want to enter the type"
GB 620 ? "  of each file (Y or N)";
DL 630 TRAP 610:INPUT D$
YQ 640 IF D$<>"Y" THEN 680
PV 650 PSW=1:? :? "E - Educational        F
    - DataFile":? "U - Utility            B
    - Business"
QS 660 ? "H - Household           G - Game":
   ? "P - Practical           M - Music"
RG 670 ? "V - VisiCalc            D - Demo":
   ? "L - Language"
JK 680 ? " Insert next disk and enter dis
   k"
CQ 690 ? " number. Type 'END' to go to Me
   nu"
PE 700 TRAP 680
LB 710 INPUT #16,D$:IF LEN(D$)=0 THEN 680
HG 720 IF D$="END" THEN 990
WP 730 DN=VAL(D$)
LN 740 IF LEN(D$)<>1 THEN 760
LS 750 D$(3,3)=D$(1,1):D$(1,2)="00"
OG 760 IF LEN(D$)<>2 THEN 780
UC 770 D$(3,3)=D$(2,2):D$(2,2)=D$(1,1):D$
   (1,1)="0"
AX 780 DISKS=DISKS+1:TRAP 940
WA 790 FILE$="D":FILE$(2)=STR$(D):FILE$(3
   )=":*.*":OPEN #1,6,0,FILE$
NZ 800 INPUT #1;FILE$:? FILE$,:IF PSW=0 T
   HEN ?
IM 810 IF FILE$(5,9)="FREE " THEN 940
QE 820 IF FILE$(3,6)="DOS " OR FILE$(3,6)
   ="DUP " THEN 920
UL 830 IF FILE$(3,7)="MENU " THEN 920
PD 840 SAV$=" ":IF PSW=0 THEN 870
WR 850 TRAP 40000:POKE 764,255:? "Program
    Type";:INPUT SAV$
NS 860 IF SAV$="*" THEN 930
EC 870 FILE$(18,20)=", ":FILE$(19,19)=SAV
   $
NT 880 COUNT=COUNT+1
RG 890 LOC=COUNT*20-19:AREA$(LOC,LOC+2)=D
   $
XN 900 AREA$(LOC+3,LOC+19)=FILE$(3,19)
NY 910 AREA$(LOC+14,LOC+14)=",":GOTO 800
FC 920 IF PSW=0 THEN 800
YX 930 ? "**Bypassed**":GOTO 800
DX 940 ? :? " End of directory, this disk
    "
QL 950 ? COUNT;" Total records.":?
FU 960 POKE 764,255:GOSUB 210
PD 970 IF LABEL THEN GOSUB 150
HL 980 CLOSE #1:GOTO 680
RQ 990 REM END OF FILE;
YN 1000 ? :? "Records added: ";COUNT
UJ 1010 ? "Disks input:  ";DISKS
VW 1020 GOSUB 210
LZ 1030 PSW=0:FOR X=1 TO 250:NEXT X:RETUR
   N
HN 1040 REM DISPLAY/PRINT RECORDS
SW 1050 IF COUNT=0 THEN 270
QA 1060 IF N=3 THEN TRAP 1440:OPEN #3,8,0
   ,"P:":PSW=1:GOTO 1080
KP 1070 OPEN #3,8,0,"S:":SETCOLOR 2,9,0
QY 1080 LINES=0:POKE 752,1:GOSUB 1390
MY 1090 FOR X=1 TO COUNT:FILE$(1,20)=AREA
   $(X*20-19,X*20)
UB 1100 IF PSW=1 THEN ? #3;""
OW 1110 ? #3;" ";FILE$(1,3);"  ";FILE$(4,
   11);"   ";FILE$(12,14);
JC 1120 ? #3;"   ";FILE$(16,18);"  ";
CP 1130 D$=FILE$(20,20):IF D$=" " THEN SA
   V$="        ":REM 8 SPACES
NQ 1140 SAV$=D$
JW 1150 IF D$="E" THEN SAV$="Educational"
NY 1160 IF D$="F" THEN SAV$="Datafile"
MI 1170 IF D$="U" THEN SAV$="Utility"
TO 1180 IF D$="B" THEN SAV$="Business"
WZ 1190 IF D$="S" THEN SAV$="System"
TX 1200 IF D$="H" THEN SAV$="Household"
IQ 1210 IF D$="G" THEN SAV$="Game"
VE 1220 IF D$="P" THEN SAV$="Practical"
OH 1230 IF D$="M" THEN SAV$="Music"
DA 1240 IF D$="V" THEN SAV$="VisiCalc"
UI 1250 IF D$="D" THEN SAV$="Demo"
BG 1260 IF D$="L" THEN SAV$="Language"
TK 1270 ? #3;SAV$
HK 1280 IF (PSW=0 AND LINES=16) THEN GOSU
   B 1330
LF 1290 IF (PSW=1 AND LINES=52) THEN GOSU
   B 1350
XG 1300 LINES=LINES+1:NEXT X
VE 1310 IF PSW=1 THEN ? "█"
RN 1311 ? :? ,"End of file":GOSUB 560
SJ 1320 GOTO 1470
FN 1330 IF PEEK(53279)=6 THEN 1480
AF 1340 GOSUB 560
FT 1350 IF PEEK(53279)=6 THEN 1480
FW 1360 IF PEEK(53279)=6 THEN 1480
YR 1370 IF PSW=1 THEN FOR Z=1 TO 8:? #3:N
   EXT Z:GOTO 1390
HE 1380 ? #3;"█"
VG 1390 IF PSW=1 THEN ? #3;""
VX 1400 ? #3;"        File Master Index":?
   #3:? #3
OR 1410 LINES=0:IF PSW=1 THEN ? #3;""
VU 1420 ? #3;"Disk# Prog.Name  XTen  Size
    Filetype"
AQ 1430 RETURN
IB 1440 ? "█":? ,"Turn The Printer On! "
XA 1450 GOSUB 220
QR 1460 FOR X=1 TO 100:NEXT X
DY 1470 TRAP 40000:CLOSE #3:POKE 752,0:PS
   W=0:RETURN
DI 1480 GOSUB 570:GOTO 1450
CR 1490 REM SAVE SUBROUTINE
ZO 1500 IF COUNT=0 THEN GOTO 270
AJ 1510 GOSUB 2510
OG 1520 TRAP 1570:OPEN #2,9,0,FILE$
FQ 1530 ? "█";FILE$;" already exists, wri
   te over it";:INPUT D$
WZ 1540 GOSUB 220
OQ 1550 IF D$="Y" THEN CLOSE #2:OPEN #2,8
   ,0,FILE$:GOTO 1580
UH 1560 GOTO 1950
WB 1570 CLOSE #2:OPEN #2,8,0,FILE$
XZ 1580 C=0:FOR X=1 TO COUNT
IA 1590 IF PEEK(53279)=6 THEN FNC$="Save"
   :GOSUB 570:GOTO 1630
SW 1600 FILE$(1,20)=AREA$(X*20-19,X*20)
UG 1610 IF FILE$(1,1)="*" THEN C=C+1:NEXT
    X:GOTO 1630
ZJ 1620 PRINT #2;FILE$:NEXT X
XC 1630 CLOSE #2:? X-C-1;" Records writte
   n":? C;" Records dropped":FOR X=1 TO 3
   00:NEXT X:RETURN
VH 1640 REM LOAD SUBROUTINE
AX 1650 GOSUB 2510
KP 1660 TRAP 1760:OPEN #2,4,0,FILE$
TW 1670 TRAP 1790
TA 1680 ? "█        File Master Index"
TY 1690 ? "DISK#  PROG.NAME  XTEN  SIZE"
YF 1700 INPUT #2;FILE$:COUNT=COUNT+1
MB 1710 ? "  ";FILE$(1,3);"  ";FILE$(4,11
   );"   ";FILE$(12,14);
GM 1720 ? "   ";FILE$(16,18);"      ";FILE
   $(20,20)
WH 1730 AREA$(COUNT*20-19,COUNT*20)=FILE$
```

continued on next page

```
FE 1740 IF PEEK(53279)=6 THEN ? :? " Load
     aborted at your request.":GOTO 1770
QX 1750 GOTO 1700
KM 1760 TRAP 40000:CLOSE #2:? "▚ File Not
     Found "
XM 1770 GOSUB 220
RM 1780 FOR X=1 TO 200:NEXT X:RETURN
ZZ 1790 IF PEEK(195)<>136 THEN ? "Error "
    ;PEEK(195);" On Load.":FOR Z=1 TO 300:
    NEXT Z:GOTO 1950
FC 1800 ? ,"   End of file reached."
AZ 1810 GOSUB 560:REM PRESS [RETURN]
WO 1820 CLOSE #2:GOTO 1950
CY 1830 REM DELETE FILE SUBROUTINE
AY 1840 GOSUB 2510
OD 1850 GOSUB 220:REM DANGER TONE
IL 1860 ? "This will delete all contents
    of":? "file ";FILE$;", Press Y to":? "
    delete it, N t return to Menu"
MI 1870 INPUT #16,D$
ZC 1880 IF D$<>"Y" THEN RETURN
UB 1890 TRAP 1930:XIO 33,#3,0,0,FILE$
OU 1900 ? :? "File:";FILE$;" Deleted."
XX 1910 GOSUB 210:REM ATTEN TONE
QY 1920 FOR X=1 TO 200:NEXT X:RETURN
KL 1930 ? #6;"File doesn't exist.":GOSUB
    220:RETURN
ZW 1940 REM MAIN MENU
XQ 1950 TRAP 1950:? "▚","   Jason Worley'
    s"
VE 1960 SETCOLOR 2,9,0:POKE 752,1
NU 1970 N=3:CLOSE #4:OPEN #4,4,0,"K:"
GS 1980 ? ," Program Indexing"
OY 1990 ?
PC 2000 ? ,"     Add Records"
MF 2010 ? ,"Display Indexes On Screen"
IC 2020 ? ,"  Print Indexes In Memory"
CC 2030 ? ,"   Sort Indexes In Memory"
DB 2040 ? ,"   Save Indexes To Disk"
AE 2050 ? ,"   Load Indexes From Disk"
QZ 2060 ? ," Delete Index Disk File"
JX 2070 ? ," Delete Index From Memory"
LU 2080 ? ,"  Clear Memory"
BR 2090 ? ,"   Exit Program"
IZ 2100 ? ,"Display Current Directory"
UX 2110 ? ," Change Drive Number"
TC 2120 POSITION 11,22:? " Records In Mem
    ory =  ";COUNT
OA 2130 POSITION 12,N:? INCH$((N-3)*7+1,(
    N-3)*7+7)
SF 2140 POKE 764,255:FOR X=1 TO 10:GET #4
    ,CH
LP 2142 IF CH=28 THEN CH=45
KM 2144 IF CH=29 THEN CH=61
ZN 2145 IF  NOT (CH=45 OR CH=61 OR CH=155
    ) THEN 2140
XJ 2150 IF CH=45 THEN IF N>3 THEN N=N-1:P
    OSITION 12,N+1:? CH$((N-2)*7+1,(N-2)*7
    +7):GOTO 2130
ZD 2160 IF CH=45 THEN POSITION 12,3:? CH$
    (1,7):N=14:GOTO 2130
PF 2170 IF CH=61 THEN IF N<14 THEN N=N+1:
    POSITION 12,N-1:? CH$((N-4)*7+1,(N-4)*
    7+7):GOTO 2130
EH 2180 IF CH=61 THEN POSITION 12,14:? CH
    $(78,84):N=3:GOTO 2130
QZ 2190 IF CH=155 THEN N=N-2:ON N GOSUB 5
    90,1050,1050,300,1500,1650,1840,2290,2
    210,2260,2460,2550
TK 2200 GOTO 1950
MK 2210 ? :? "▚Zeroing Memory Will Destro
    y All"
UW 2220 ? "Entries That Are Not Saved On
    Disk."
DC 2230 ? "(Y=Zero memory, N=Main menu)":
    ? "Continue";:INPUT D$:IF D$="Y" THEN
    2250
AQ 2240 RETURN
JG 2250 CLR :GOTO 2620
ND 2260 ? "▚End program";:INPUT D$:IF D$=
    "Y" THEN GRAPHICS 0:END
AZ 2270 RETURN
GS 2280 REM DELETE FROM MEMORY
AK 2290 IF COUNT=0 THEN GOTO 270
FT 2300 ? "▚          Deleting Records"
YC 2310 ? "An Entire Disks Index May Be":
    ? "Deleted By Entering That Number Now
    .":? "Press [RETURN] To Exit."
NS 2320 TRAP 40000:INPUT #16,D$:IF LEN(D$
    )=0 THEN RETURN
OL 2330 IF LEN(D$)<>1 THEN 2350
TP 2340 D$(3,3)=D$(1,1):D$(1,2)="00"
RL 2350 IF LEN(D$)<>2 THEN 2370
EB 2360 D$(3,3)=D$(2,2):D$(2,2)=D$(1,1):D
    $(1,1)="0"
MF 2370 C=0:FOR X=1 TO COUNT:Z=X*20
TC 2380 IF AREA$(Z-19,Z-17)=D$(1,3) THEN
    AREA$(Z-19,Z-19)="*":C=C+1
GC 2390 IF PEEK(53279)=6 THEN FNC$="Delet
    e":GOSUB 570:POP :GOTO 2410
LH 2400 NEXT X
KJ 2410 ? "";C;" Records were flagged."
PZ 2420 ? "Actual deletion will not occur
     until":? "file is written back to dis
    k."
WI 2430 GOSUB 210
VC 2440 FOR Z=1 TO 100:NEXT Z:GOTO 1950
QI 2450 REM DISPLAY DIRECTORY
EW 2460 POKE 82,0:POKE 83,40:? "▚":? ,"Me
    nu Of Disk In Drive ";D:? :TRAP 2490
FO 2470 FILE$="D":FILE$(2)=STR$(D):FILE$(
    3)=":*.*":OPEN #1,6,0,FILE$
JJ 2480 INPUT #1;FILE$:? FILE$,:GOTO 2480

CI 2490 CLOSE #1:POKE 82,2:POKE 83,38:? :
    GOSUB 210:GOSUB 560:GOTO 1950
OO 2500 REM REQUEST FILENAME
LO 2510 FILE$="D":FILE$(2)=STR$(D):FILE$(
    3)=":PROGINDX."
PJ 2520 TRAP 2520:? "▚":POSITION 2,4:? "E
    nter 3-Digit Extension For Filename>";
    :INPUT SOR$
EK 2530 IF LEN(SOR$)<>0 THEN FILE$(13)=SO
    R$:RETURN
TP 2540 GOTO 1940
DC 2550 ? "▚":? :? "Current drive number
    is ";D;".":?
BU 2555 ? "Enter new drive number or [RET
    URN] for":? "no change."
YB 2560 INPUT #16,D$:IF LEN(D$)=0 THEN RE
    TURN
BZ 2570 D=VAL(D$):RETURN
ZP 2580 GRAPHICS 2+16:POSITION 4,3:? #6;"
    file master":POSITION 4,5:? #6;"THE UL
    TIMATE":POSITION 4,6
ZS 2590 GRAPHICS 2+16:POSITION 4,3:? #6;"
    file master":POSITION 4,5:? #6;"THE UL
    TIMATE":POSITION 4,6
JL 2600 ? #6;"DISK INDEXER":POSITION 2,10
    :? #6;"BY JASON WORLEY"
TT 2610 FOR X=1 TO 150:NEXT X
GN 2620 DIM FILE$(30),SOR$(3),D$(5),D1$(2
    5):D$="        ":D=1
WE 2625 MAXSIZE=INT(FRE(0)/2000)*100
GI 2630 DIM AREA$(20*MAXSIZE),SAV$(20)
SC 2640 DIM CH$(86):CH$="    AddDisplay
    Print   Sort   Save   Load Delete Dele
    te  Clear   ExitDisplay Change"
OP 2650 DIM INCH$(86):INCH$="      AddDispl
    ay  Print   Sort   Save   Load Delete
    Delete  Clear   ExitDisplay Change"
CS 2660 DIM SR$(71):SR$="Extension       Pr
    ogram Type  Disk Number   Alphabetical
    lyFile Length   "
BJ 2670 DIM INSR$(71):INSR$="Extension
      Program Type  Disk Number   Alphabet
    icallyFile Length     "
UQ 2680 GOTO 1950
```

handy disk directory printouts

FLOPPY FILER

Article on page 35

LISTING 1

Don't type the TYPO II Codes!

```
HP 10 REM DISKETTE INSERT MAKER
HY 20 REM BY ROBERT A. BLANEY
GL 30 REM (c) 1986, ANTIC PUBLISHING
GX 100 DIM L$(960),U$(17),RET$(1),A$(17),
   B$(17),C$(15),TEMP$(17),LABEL$(38),DAT
   E$(8),SEC$(3)
QQ 110 LABEL$(1)=" ":LABEL$(38)=LABEL$:LA
   BEL$(2)=LABEL$
KK 120 GRAPHICS 7:SETCOLOR 4,12,4:COLOR 1
   :SETCOLOR 0,0,4:SETCOLOR 2,12,4
BQ 130 REM DRAW DISKETTE
JS 140 PLOT 116,72:DRAWTO 116,24:DRAWTO 4
   4,24:POSITION 44,72:POKE 765,1
SL 180 XIO 18,#6,0,0,"S:"
IW 200 COLOR 2:SETCOLOR 1,0,0
OA 210 FOR LN=40 TO 51:READ X1,X2
WY 220 PLOT X1,LN:DRAWTO X2,LN:NEXT LN
TY 250 FOR LN=59 TO 70:READ X1,X2
XG 260 PLOT X1,LN:DRAWTO X2,LN:NEXT LN
PN 290 COLOR 3:SETCOLOR 2,12,4
TQ 300 PLOT 116,35:DRAWTO 116,33:DRAWTO 1
   14,33:DRAWTO 114,35:DRAWTO 116,35:PLOT
    115,34
YG 350 COLOR 2
OD 360 FOR LN=1 TO 13:READ X1,X2:PLOT X2,
   X1:NEXT LN
SQ 370 FOR LN=9 TO 13:PLOT 80,LN:NEXT LN
QD 380 PLOT 80,17
LS 390 POKE 752,1:? "           DISKETTE LAB
   EL INSERT"
QO 400 ? "                       by":? "
       Robert A. Blaney"
EC 410 FOR DLAY=1 TO 1000:NEXT DLAY
AO 420 ? :? :? :?
GR 430 ? "INSERT Diskette for Directory":
   ? "   Press RETURN when Ready";:INPUT
   #16;RET$
SB 440 CLOSE #3:OPEN #3,6,0,"D:*.*"
HK 450 TRAP 480:FOR I=1 TO 64
EQ 460 INPUT #3,U$
RE 470 START=(I-1)*15+1:L$(START)=U$(3,17
   ):NEXT I
HT 480 ? "Ready Printer and Press RETURN"
   ;:INPUT #16;RET$:LPRINT "␛0":REM 8 LPI

II 500 GOSUB 790:REM LABEL/DATE ROUTINE
CV 510 GOSUB 700:LPRINT "| ";LABEL$(1,38)
   ;DATE$;" |":J=I-1:SEC$=U$(1,3):GOSUB 7
   40
VP 520 GOSUB 770:GOSUB 780
SV 530 K=1:FOR J=1 TO I-1
YU 540 ON K GOTO 550,560
FJ 550 C$=L$(((J-1)*15)+1,J*15):GOSUB 610
   :A$=TEMP$:K=K+1:PND=1:GOTO 570
DJ 560 C$=L$(((J-1)*15)+1,J*15):GOSUB 610
   :B$=TEMP$:K=K-1:PND=0:GOSUB 720
GT 570 NEXT J
IM 580 IF PND=1 THEN GOSUB 720
JS 590 FOR LN=1 TO (32-(INT(J/2))):GOSUB
   710:NEXT LN:GOSUB 700
FB 600 LPRINT "␛2":GOTO 920:REM 6 LPI
QX 610 REM ROUTINE TO COMPRESS TO FN.FT
CH 620 TEMP$(1)=" ":TEMP$(16)=TEMP$:TEMP$
   (2)=TEMP$
ZR 630 FOR L=1 TO 8:TEMP$(L,L)=C$(L,L)
VK 640 IF TEMP$(L,L)=" " THEN 660
HK 650 NEXT L
QT 660 REM BLANK FOUND; SET "."
HM 670 IF C$(9,9)=" " THEN 690
PY 680 TEMP$(L,L)=".":TEMP$(L+1,L+3)=C$(9
   ,11)
XP 690 TEMP$(14,16)=C$(13,15):RETURN
FO 700 LPRINT "+--------------------------
   -------------------------+":RETURN
PH 710 LPRINT "|
                               |":RETURN
HZ 720 LPRINT "|     ";A$;"   ";B$;"
   |"
AA 730 B$(1)=" ":B$(16)=B$:B$(2)=B$:RETUR
   N
OV 740 IF J<10 THEN 760
IJ 750 LPRINT "|  # FILES = ";J;"
      AVAIL. SECTS = ";SEC$;"    |":RETU
   RN
UO 760 LPRINT "|  # FILES =  ";J;"
       AVAIL. SECTS = ";SEC$;"    |":RET
   URN
OG 770 LPRINT "|        FILENAME   SECS
   FILENAME    SECS        |":RETURN
FV 780 LPRINT "|        --------   ----
   --------    ----        |":RETURN
HL 790 REM LABEL/DATE ROUTINE
DB 800 ? "TITLE OF DIRECTORY(MAX.38 CHARS
   )":INPUT LABEL$
GL 810 IF LEN(LABEL$)>38 THEN ? "TOO MANY
    CHARACTERS. ENTER AGAIN.":GOTO 800
SM 820 ? "ENTER THE DATE(MAX. 8 CHARS.)";
   :INPUT DATE$
WE 840 IF LEN(DATE$)<8 THEN DATE$(LEN(DAT
   E$)+1,8)="        "
EH 850 FOR XX=LEN(LABEL$)+1 TO 38:LABEL$(
   XX,XX)=" ":NEXT XX
ZQ 860 RETURN
DC 870 DATA 79,81,77,83,75,85,74,86,73,87
   ,72,88
DE 880 DATA 72,88,73,87,74,86,75,85,77,83
   ,79,81
NG 890 DATA 79,81,78,82,77,83,77,83,77,83
   ,77,83,77,83
HN 900 DATA 77,83,77,83,77,83,78,82,79,81
TS 910 DATA 5,75,4,76,3,77,2,79,2,80,2,81
   ,3,83,4,84,5,85,6,85,7,84,8,83,9,81
ED 920 ? "            DIRECTORY COMPLETED"
SE 930 ? "CUT DIRECTORY (on dotted lines)
    & PUT IT IN DISK JACKET."
PE 940 ? "Do another one? (Y/N) ";:INPUT
   RET$:IF RET$="Y" THEN 430
KY 950 GRAPHICS 0:END
```

game of the month

BUMBLBEE

Article on page 41

LISTING 1

Don't type the TYPO II Codes!

```
BW 10 REM BUMBLBEE
WV 20 REM BY EDDIE CARSTENS
GL 30 REM (c) 1986, ANTIC PUBLISHING
LR 40 HIGH=PEEK(1536)*256+PEEK(1537):SPD=
   3:GOSUB 2010:GOTO 80
FB 50 RX=INT(RND(0)*15)*10+10:RY=INT(RND(
   0)*8)*10+10:RETURN
PH 60 PLOT RX,RY:DRAWTO RX+4,RY+4:PLOT RX
   +4,RY:DRAWTO RX,RY+4:PLOT RX+1,RY:DRAW
   TO RX+4,RY+3:PLOT RX,RY+1
HM 70 DRAWTO RX+3,RY+4:PLOT RX+3,RY:PLOT
   RX+4,RY+1:PLOT RX,RY+3:PLOT RX+1,RY+4:
   COLOR 0:PLOT 0,1:RETURN
XZ 80 GRAPHICS 7+16:COLOR 2:PLOT 159,3:DR
   AWTO 159,95:DRAWTO 0,95:DRAWTO 0,3:FP=
   0:M=-3:N=15
TQ 90 SETCOLOR 2,4,2:SETCOLOR 0,12,8:SETC
   OLOR 1,0,15
NQ 100 ST=PEEK(560)+PEEK(561)*256:POKE ST
   +3,66
YS 110 POKE 752,1:POKE 87,0:POSITION 1,0:
   ? "SCR       BOUNCES 3  HIGH       G 4
   .0";
UO 120 POSITION 27,0:? HIGH*10;:POKE 87,7

GM 130 COLOR 3:GOSUB 50:GOSUB 60
DY 140 G=0.4:X=80:Y=40:XV=0:YV=0
FC 150 S=STICK(0):XC=0:XC=(S>4 AND S<8)-(
   S>8 AND S<12)
ZC 152 IF  NOT FP THEN XV=XV+XC:YV=YV+G-(
    NOT STRIG(0)):GOTO 160
OC 155 IF -XC=FP THEN XV=XV+XC:FP=0
WI 160 PK=PEEK(53279):IF PK=7 THEN 190
OX 165 IF PK=6 THEN 80
VR 170 IF PK=3 OR PK=5 THEN GOSUB 2010:GO
   TO 80
SY 190 IF  NOT STRIG(0) THEN SOUND 0,0,4,
   4
QV 200 PX=X:PY=Y:X=X+XV:Y=Y+YV:IF Y<1 OR
   Y>94 THEN 370
JP 210 IF X>158 OR X<1 THEN XV=0:YV=0:COL
   OR 0:PLOT PX,PY:PX=157*(X>158)+1:FP=SG
   N(X-2):GOTO 370
YJ 230 LOCATE X,Y,C:IF C=1 THEN PSN=8:GOT
   O 370
QA 240 IF C<>3 THEN 270
XL 250 COLOR 0:GOSUB 60:GOSUB 360:GOSUB 5
   0:COLOR 3:GOSUB 60:G=G+0.1:N=N+1
EE 260 POKE 87,0:POSITION 5,0:? N*10+M*50
   ;:POSITION 19,0:? INT(N/5);" ";:POKE 8
   7,7
XQ 270 COLOR 0:PLOT PX,PY:COLOR 2:PLOT X,
   Y:SOUND 0,0,0,0:G=G-1.0E-03-LEV*3E-04
YU 280 T=T+1:IF T<50-4*LEV THEN 330
UK 290 QX=RX:QY=RY:Q=0
IJ 300 GOSUB 50:LOCATE RX,RY,C:IF C OR AB
   S(RX-X)<10 OR ABS(RY-Y)<10 THEN 320
PI 310 COLOR 1:GOSUB 60:T=1
CD 320 T=T-1:RX=QX:RY=QY
ZG 330 FOR W=1 TO (5-SPD)*7+1:NEXT W
ZU 340 COLOR 0:PLOT 0,1:POKE 87,0:POSITIO
   N 35,0:? INT(G*100)/10;:IF G<1 THEN ?
   "□";
BM 345 IF PSN THEN PSN=PSN-1:SETCOLOR 0,1
   2,8-PSN
ZM 350 POKE 87,7:POKE 77,0:GOTO 150
LA 360 FOR I=120 TO 60 STEP -5:SOUND 0,I,
   10,15:NEXT I:SOUND 0,0,0,0:RETURN
CM 370 SOUND 0,60,12,10
XW 380 IF N<5 THEN 410
XH 390 N=N-5:M=M+1:X=PX:Y=PY:XV=-XV:YV=-Y
   V
DB 400 COLOR 0:PLOT 0,1:POKE 87,0:POSITIO
   N 19,0:? INT(N/5);" ";:POKE 87,7:GOTO
   150
XN 410 IF M*5+N>HIGH THEN HIGH=M*5+N:HH=I
   NT(H/256):LL=HIGH-HH*256:POKE 1536,HH:
   POKE 1537,LL
ZY 420 COLOR 2:PLOT 43,40:DRAWTO 36,40:DR
   AWTO 36,50:DRAWTO 43,50:DRAWTO 43,45:D
   RAWTO 39,45
QK 430 PLOT 50,40:DRAWTO 46,50:PLOT 50,40
   :DRAWTO 54,50:PLOT 48,45:DRAWTO 52,45
EJ 440 PLOT 56,50:DRAWTO 56,40:DRAWTO 59,
   45:DRAWTO 62,40:DRAWTO 62,50
FV 450 PLOT 73,40:DRAWTO 66,40:DRAWTO 66,
   50:DRAWTO 73,50:PLOT 67,45:DRAWTO 70,4
   5
KV 1050 PLOT 86,42:DRAWTO 88,40:DRAWTO 91
   ,40:DRAWTO 93,42:DRAWTO 93,48
US 1055 DRAWTO 91,50:DRAWTO 88,50:DRAWTO
   86,48:DRAWTO 86,43
EI 1060 PLOT 96,40:DRAWTO 100,50:DRAWTO 1
   04,40
XO 1070 PLOT 113,40:DRAWTO 106,40:DRAWTO
   106,50:DRAWTO 113,50:PLOT 107,45:DRAWT
   O 111,45
VJ 1080 PLOT 116,40:DRAWTO 124,40:DRAWTO
   124,45:DRAWTO 116,45
UX 1085 PLOT 116,40:DRAWTO 116,50:PLOT 12
   0,45:DRAWTO 124,50
AX 1090 COLOR 0:PLOT 124,40:PLOT 124,45:P
   LOT 0,1
JR 1200 SOUND 0,0,0,0:GOSUB 2000:GOTO 80
JJ 2000 POKE 87,0:POSITION 5,0:? N*10+M*5
   0;
KL 2001 POSITION 19,0:? INT(N/5);" ";:POS
   ITION 27,0:? HIGH*10:POSITION 35,0:? I
   NT(G*100)/10
EE 2004 POSITION 0,1:Z=0
ZV 2005 Z=Z+1:? "□";:IF PEEK(53279)=7 AND
    Z<300 THEN 2005
YT 2006 IF PEEK(53279)=6 THEN RETURN
NR 2010 GRAPHICS 0:SETCOLOR 2,2,8:SETCOLO
   R 1,0,0:SETCOLOR 4,0,15:POKE 752,1:POS
   ITION 15,0:? " BUMBLBEE "
MF 2011 ? "           for ANTIC magazine"
YT 2012 ? "           by Eddie Carstens"
QL 2015 POSITION 7,7:? "PRESS OPTION TO S
   ET SPEED.":POSITION 11,8:? "PRESS STAR
   T TO START."
LI 2020 POSITION 16,11:? "SPEED ";SPD
IH 2025 POSITION 11,14:? "METABOLISM ";LE
   V+1;" ";
FY 2030 P=PEEK(53279):IF P=7 THEN 2020
OH 2040 SPD=SPD+(P=3):SPD=SPD-(SPD=6)*5:L
   EV=LEV+(P=5):LEV=LEV-10*(LEV=10)
ZY 2050 IF P=6 THEN RETURN
ZY 2090 IF PEEK(53279)<>7 THEN 2090
OC 2100 GOTO 2020
```

LINKLINE

Article on page 55

LISTING 2

```
0100 ;D1:LINKLINE.M65
0110 ;
0120      .TITLE "LinkLine/800"
0130 ; (c) 1986 Antic Publishing.
0140 ; Ver. 041486
0150 ; Written by Patrick Bass
0160 ;
0170      .IF PASS=0
0180       .INCLUDE #D1:SYSEQU.M65
0190       .INCLUDE #D1:IOMAC.LIB
0200      .ENDIF
0210 PASS =  1
0220 TOTALCODE = ENDCODE-STARTCODE
0230      .OPT NO LIST
0240      .OPT NO MLIST
0250      .PAGE
0260      .INCLUDE #D1:LINKA.M65
0270      .OPT LIST
0280 ENDCODE
0290      *=  $02E0
0300      .WORD STARTCODE
0310      .OPT NO LIST
0320      .END
```

LISTING 3

```
0100 ;D1:LINKA.M65
0110 ;
0120 ; .INCLUDEd in D:LINKLINE.M65
0130 ; (c) 1986 Antic Publishing
0140 ; Written by Patrick Bass
0150 ;
0160 ;Three MACROs.
0170 ;1) Signed, two-byte addition.
0180 ;example:  BUMP COUNTER,20
0190 ;
0200      .MACRO BUMP
0210      CLC
0220      LDA %1
0230      ADC # <%2
0240      STA %1
0250      LDA %1+1
0260      ADC # >%2
0270      STA %1+1
0280      .ENDM
0290 ;
0300 ;2) Signed, two-byte subtraction
0310 ;example:  DBUMP COUNTER,17
0320 ;
0330      .MACRO DBUMP
0340      SEC
0350      LDA %1
0360      SBC # <%2
0370      STA %1
0380      LDA %1+1
0390      SBC # >%2
0400      STA %1+1
0410      .ENDM
0420 ;
0430 ;3) A "Load-Word" construction.
0440 ;example: LDW LABEL,POINTER
0450 ;
0460      .MACRO LDW
0470      LDA # >%1
0480      STA %2+1
0490      LDA # <%1
0500      STA %2
0510      .ENDM
0520 ;
0530 ; We decide where start will be.
0540 STARTCODE = $2700
0550 ; Rest of RAM for boofers.
0560 TEXTBUFFER = STARTCODE+$0900
0570 ;
0580 ; Pointers down on el pageo zero
0590      *=  $80
0600 LENTEXTBUFF *= *+2
0610 POINTER *= *+2  ;generic pointer
0620 TEXTPOINTER *= *+2
0630 ;
0640 ; Early Constants
0650 SEDITOR = 0          ;screen editor
0660 EDITOR = 5           ;char editor
0670 DISK =  6            ;la disk
0680 SERIAL = 2           ;R5232
0690 KEYBOARD = 1         ;der keyboarden
0700 READ =  4            ;eine SehenSie
0710 PRINTER = 4          ;die schriber
0720 WRITE = 8            ;Scriben Sie
0730 EOL =    155         ;End Of Line
0740 CR  =    13          ;honest return
0750 STX =    2           ;Start of text
0760 ETX =    3           ;End of text
0770 BAUD =   13          ;13=4800 baud
0780 TV  =    EDITOR      ;EDITOR too long
0790 COLOR1 = $02C5       ;Shadows
0800 COLOR2 = $02C6
0810 COLOR4 = $02C8
0820 ;
0830 ;And after all that, the program
0840 ;fianally starts rite'cheer.
0850 ;
0860      *=  STARTCODE
0870      CLD
0880      SEI
0890      LDX #$FC
0900      TXS
0910      CLI
0920      JMP SUBMISSION
0930 ;
0940 ;-----------------------------
0950 ;Strings for the screen.
0960 AMESS
0970      .BYTE "         "
0980      .BYTE "LinkLine/800",EOL
0990      .BYTE "V.041486 (C)1986 "
1000      .BYTE "Antic Publishing",EOL
1010      .BYTE "      Written by "
1020      .BYTE "Patrick Bass",EOL
1030 AMESSLEN = *-AMESS
1040 RMESS
1050      .BYTE EOL," Receiving "
1060 RMESSLEN = *-RMESS
1070 WMESS
1080      .BYTE EOL," Working "
1090 WMESSLEN = *-WMESS
1100 TMESS
1110      .BYTE EOL," Transmitting "
1120 TMESSLEN = *-TMESS
1130 REMESS
1140      .BYTE EOL," READY",EOL,">"
1150 REMESSLEN = *-REMESS
1160 ERRMESS
1170      .BYTE EOL," Fine Error! "
1180 ERRMESSLEN = *-ERRMESS
1190 ;
1200 ;Schmall Boofers
1210 INBUFF
1220      *=  *+128
```

continued on next page

```
1230 OUTBUFF
1240      *=  *+128
1250 ;
1260 ;---------------------------
1270 ;Code Entry Point
1280 ; Open channel TV to screen,
1290 ; New colors black on white.
1300 ; Title to TV screen.
1310 ; MAIN:
1320 ; Print READY message.
1330 ; Get new command.
1340 ; Decode, act on command.
1350 ; loop back to MAIN
1360 ;
1370 SUBMISSION
1380       OPEN  TV,WRITE,0,"E:"
1390      LDA #8
1400      STA COLOR4
1410      STA COLOR2
1420      LDA #2
1430      STA COLOR1
1440       BPUT  TV,AMESS,AMESSLEN
1450 ;
1460       XIO  38,SERIAL,32,0,"R1:"
1470       XIO  36,SERIAL,BAUD,0,"R1:"
1480 ;- - - - - - - - - - - - - - -
1490 MAIN
1500       BPUT  TV,REMESS,REMESSLEN
1510      JSR GETCOMMAND
1520 ;
1530       BPUT  TV,WMESS,WMESSLEN
1540      JSR DECODE
1550 ;
1560      JMP MAIN
1570 ;
1580 ;---------------------------
1590 DFILENAME
1600      .BYTE "D1:"
1610 FILENAME
1620      *=  *+32
1630 ;
1640 ;A routine to open a disk file.
1650 ;
1660 OPENFILE
1670 ;Determine if the person typed
1680 ; in the disk drive specifier.
1690 ; If so, branch to OPENF1
1700 ;
1710      LDA FILENAME+1
1720      CMP #':
1730      BEQ OPENF1
1740 ;
1750      LDA FILENAME+2
1760      CMP #':
1770      BEQ OPENF1
1780 ;
1790 ; Otherwise assume they didn't
1800 ; and use the default drive.
1810 ;
1820       OPEN  DISK,READ,0,DFILENAME
1830      BPL OPENF2
1840      BMI OPENF3
1850 OPENF1
1860 ; Use the drive spec the human
1870 ; gave us.
1880 ;
1890       OPEN  DISK,READ,0,FILENAME
1900 OPENF2
1910      BMI OPENF3
1920 ;
1930 ;Return a positive zero if
1940 ; file opened OK
1950 ;
1960      LDA #$00
1970      RTS
1980 OPENF3
1990 ; Otherwise print a Disk Error
2000 ; message and return negative.
2010 ;
2020       BPUT  TV,ERRMESS,ERRMESSLEN
2030      LDA #$FF
2040      RTS
2050 ;
2060 ;---------------------------
2070 ;A routine to write a disk file.
2080 ;
2090 WRITEFILE
2100 ; Point to TEXTBUFFER
2110      LDW  TEXTBUFFER,TEXTPOINTER
2120 ;
2130 ; And since we'll count down
2140 ; through zero, bump the file
2150 ; count down by one.
2160 ;
2170       DBUMP  LENTEXTBUFF,1
2180 ;
2190 ; Check if the human typed in
2200 ; the drive specifier.
2210 ; Branch to WRIT1 if they did.
2220 ;
2230      LDA FILENAME+1
2240      CMP #':
2250      BEQ WRIT1
2260      LDA FILENAME+2
2270      CMP #':
2280      BEQ WRIT1
2290 ;
2300 ;Otherwise use the default
2310 ; FileSpec supplied.
2320 ;
2330       OPEN  DISK,WRITE,0,DFILENAME
2340      BPL WRIT2
2350       BPUT  TV,ERRMESS,ERRMESSLEN
2360      JMP WRITX
2370 WRIT1
2380       OPEN  DISK,WRITE,0,FILENAME
2390      BMI WRITX
2400 WRIT2
2410 ; Write file in TEXTBUFFER to
2420 ; the disk char by char.
2430 ;
2440      LDY #0
2450      LDA (TEXTPOINTER),Y
2460      STA OUTBUFF
2470       BPUT  DISK,OUTBUFF,1
2480       BUMP  TEXTPOINTER,1
2490       DBUMP  LENTEXTBUFF,1
2500      BCS WRIT2
2510 WRITX
2520      RTS
2530 ;
2540 ;---------------------------
2550 ;Reply to the ST
2560 ;
2570 SENDANSWER
2580       OPEN  SERIAL,13,0,"R1:"
2590       XIO  40,SERIAL,0,0,"R1:"
2600       LDW  TEXTBUFFER,TEXTPOINTER
2610 ;
2620 ; Send the STX header and the
2630 ; LO, HI bytes of the file len
2640 ;
2650      LDA #STX
2660      STA OUTBUFF
2670      LDA LENTEXTBUFF
2680      STA OUTBUFF+1
2690      LDA LENTEXTBUFF+1
2700      STA OUTBUFF+2
2710       BPUT  SERIAL,OUTBUFF,3
2720 ;
2730 SENDRS232CHAR
2740 ; Stuff the file char by char
2750 ; out the RS232 channel.
2760 ;
2770      LDY #0
2780      LDA (TEXTPOINTER),Y
2790      STA OUTBUFF
2800       BPUT  SERIAL,OUTBUFF,1
2810       BUMP  TEXTPOINTER,1
2820       DBUMP  LENTEXTBUFF,1
2830      BCS SENDRS232CHAR
2840 ;
2850 ;When finished, send the ETX.
2860 ;
2870      LDA #ETX
2880      STA OUTBUFF
2890       BPUT  SERIAL,OUTBUFF,1
2900 ;
2910       CLOSE  SERIAL
2920      RTS
2930 ;
2940 ;---------------------------
2950 COMBUFFINDEX
2960      .WORD 0
2970 COMBUFF
2980      *=  *+128
2990 ;- - - - - - - - - - - - - -
3000 ;Accept command from ST-land.
3010 ;
```

```
3020 GETCOMMAND
3030       OPEN   SERIAL,13,0,"R1:"
3040       XIO  40,SERIAL,0,0,"R1:"
3050      LDX #0
3060 GETL1
3070 ;
3080 ;Accept any character and put
3090 ; into COMBUFF until CR found.
3100 ;
3110      STX COMBUFFINDEX
3120       BGET  SERIAL,INBUFF,1
3130      JSR PCOMMAND
3140      LDX COMBUFFINDEX
3150      LDA INBUFF
3160      STA COMBUFF,X
3170      INX
3180      CMP #CR
3190      BNE GETL1
3200 ;
3210       CLOSE  SERIAL
3220      RTS
3230 ;
3240 ;- - - - - - - - - - - - - - -
3250 PCOMMAND
3260 ;Print alphanumeric characters
3270 ; in command buffer.
3280 ;
3290      LDA INBUFF   ;Get char
3300      CMP #$20     ;Less than 32?
3310      BCC PCOMX    ;Branch if yes.
3320 ;
3330       BPUT  TV,INBUFF,1
3340 PCOMX
3350      RTS
3360 ;
3370 ;------------------------
3380 ;Decide what the ST-er wants.
3390 ;
3400 DECODE
3410      LDX #0
3420 DECO1
3430      LDA COMBUFF,X
3440      CMP #'L       ;ST want LOAD?
3450      BNE DECO2     ;branch if not.
3460 ;
3470      JMP LOAD      ;Else LOAD file.
3480 DECO2
3490      CMP #'S       ;ST want SAVE?
3500      BNE DECO3     ;branch if not.
3510 ;
3520      JMP SAVE      ;Else SAVE file.
3530 DECO3
3540      INX           ;point to next
3550      CPX #32       ;at 32 yet?
3560      BCC DECO1     ;branch if less.
3570 ;
3580      RTS
3590 ;
3600 ;--------------------------
3610 ;Open and load a disk file.
3620 ;
3630 LOAD
3640      INX           ;point at name
3650      LDY #0        ;new index.
3660 DOLO1
3670 ; Transfer command filename
3680 ; into FILENAME buffer.
3690 ;
3700      LDA COMBUFF,X
3710      STA FILENAME,Y
3720      INX
3730      INY
3740      CPY #20       ;until 32 chars
3750      BCC DOLO1
3760 ;
3770 ; Point at TEXTBUFFER...
3780 ; Reset file length.
3790 ;
3800       LDW  TEXTBUFFER,TEXTPOINTER
3810       LDW  $00,LENTEXTBUFF
3820      JSR OPENFILE
3830      BMI DOLO2     ;branch/error.
3840 ;
3850      JSR READFILE
3860 DOLO2
3870       CLOSE  DISK
3880       BPUT  TV,TMESS,TMESSLEN
3890      JSR SENDANSWER
3900      RTS
3910 ;
3920 ;--------------------------
3930 READFILE
3940       BGET  DISK,INBUFF,1
3950      BMI RFIL2
3960 ;
3970      LDY #0
3980      LDA INBUFF
3990      STA (TEXTPOINTER),Y
4000       BUMP  TEXTPOINTER,1
4010       BUMP  LENTEXTBUFF,1
4020      JMP READFILE
4030 RFIL2
4040      RTS
4050 ;
4060 ;--------------------------
4070 ;Open/write a disk file.
4080 ;
4090 SAVE
4100      INX
4110      LDY #0
4120 SAVE1
4130      LDA COMBUFF,X
4140      STA FILENAME,Y
4150      INX
4160      INY
4170      CPY #20
4180      BCC SAVE1
4190 ;
4200      JSR GETFILE
4210      JSR WRITEFILE
4220 SAVE2
4230       CLOSE  DISK
4240       LDW  0,LENTEXTBUFF
4250       LDW  TEXTBUFFER,TEXTPOINTER
4260      RTS
4270 ;
4280 ;----------------------------
4290 LENTRANS
4300      .WORD 0,0
4310 ;- - - - - - - - - - - - - - -
4320 ;Wait for STX, file len, get
4330 ; file, split.
4340 ;
4350 GETFILE
4360       LDW  0,LENTEXTBUFF
4370       LDW  TEXTBUFFER,TEXTPOINTER
4380       BPUT  TV,RMESS,RMESSLEN
4390       OPEN  SERIAL,13,0,"R1:"
4400       XIO  40,SERIAL,0,0,"R1:"
4410 GETSTX
4420       BGET  SERIAL,INBUFF,1
4430      LDA INBUFF
4440      CMP #STX
4450      BNE GETSTX
4460 ;
4470       BGET  SERIAL,LENTRANS,1
4480       BGET  SERIAL,LENTRANS+1,1
4490 GETRS232CHAR
4500       BGET  SERIAL,INBUFF,1
4510      LDY #0
4520      LDA INBUFF
4530      STA (TEXTPOINTER),Y
4540       BUMP  TEXTPOINTER,1
4550       BUMP  LENTEXTBUFF,1
4560       DBUMP  LENTRANS,1
4570      LDA LENTRANS
4580      ORA LENTRANS+1
4590      BNE GETRS232CHAR
4600 ;
4610       CLOSE  SERIAL
4620      RTS
4630 ;
```

LISTING 4

```
NI 10 REM LINKLINE
PB 20 REM BY PATRICK BASS
GL 30 REM (c) 1986, ANTIC PUBLISHING
CQ 40 REM (LINES 10-220 MAY BE USED WITH
      OTHER BASIC LOADERS IN THIS ISSUE.
IS 45 REM CHANGE LINE 70 AS NECESSARY.)
MG 50 DIM FN$(20),TEMP$(20),AR$(93)
HO 60 DPL=PEEK(10592):POKE 10592,255
MO 70 FN$="D:AUTORUN.SYS":REM THIS IS THE
      NAME OF THE DISK FILE TO BE CREATED
```

continued on next page

```
YS 80 GRAPHICS 0:? "       ANTIC'S GENERIC
   BASIC LOADER"
CD 90 ? ,"BY CHARLES JACKSON"
PW 100 POKE 10592,DPL:TRAP 170
PO 110 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LQ 120 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BK 130 AR$="":READ AR$
XW 140 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DG 150 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")      "
UY 160 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 130
MZ 170 IF PEEK(195)=5 THEN ? :? :? "▣TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CZ 180 IF C<LN+1 THEN ? :? "▣TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
AL 200 OPEN #1,8,0,FN$
PP 210 POKE 766,1:? #1;A$;:POKE 766,0
AF 220 CLOSE #1:GRAPHICS 0:? "█COMPLETED█
   "
MC 1000 DATA 1783
CV 1010 DATA 2552550000056075056169080141O
   00003169001141001003169063141002003169
   064141003003169005141006003
```

```
YS 80 GRAPHICS 0:? "       ANTIC'S GENERIC
   BASIC LOADER"
CD 90 ? ,"BY CHARLES JACKSON"
PW 100 POKE 10592,DPL:TRAP 170
PO 110 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LQ 120 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BK 130 AR$="":READ AR$
XW 140 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DG 150 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")      "
UY 160 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 130
MZ 170 IF PEEK(195)=5 THEN ? :? :? "▣TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CZ 180 IF C<LN+1 THEN ? :? "▣TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
AL 200 OPEN #1,8,0,FN$
PP 210 POKE 766,1:? #1;A$;:POKE 766,0
AF 220 CLOSE #1:GRAPHICS 0:? "█COMPLETED█
   "
MC 1000 DATA 1783
CV 1010 DATA 25525500000560750561690801410
   00003169001141001003169063141002003169
   064141003003169005141006003
EW 1020 DATA 1410050031690001410040031410
   09003141010003141011003169012141008003
   032089228016001096162011189
UY 1030 DATA 0000051570000032020162470320
   89228048006032006005108012000096226002
   227002000056255255000039155
DK 1040 DATA 0392161201622521540880761560
   40032032032032032032032032032032032076
   105110107076105110101047056
EW 1050 DATA 0480481550860460480520490520
   56054032040067041049057056054032065110
   116105099032080117098108105
VO 1060 DATA 1151041051101031550320320320
   32032087114105116116101110032098121032
   080097116114105099107032066
QN 1070 DATA 0971151151551550320821010991
   01105118105110103032155032087111114107
   105110103032155032084114097
XA 1080 DATA 1101151091051161161051101030
   32155032082069065068089155062155160198
   233236229160197242242239242
GX 1090 DATA 1611601560401240411620801690
   03157066003169008157074003169000157075
   003076179040069058000169176
SG 1100 DATA 1570680031690401570690030320
   86228169008141200002141198002169002141
   197002162080169011157066003
CH 1110 DATA 1690091570680031690391570690
   03169087157072003169000157073003032086
   228162032169038157066003169
US 1120 DATA 0321570740031690001570750030
   76003041082049058000169255157068003169
   040157069003032086228162032
FO 1130 DATA 1690361570660031690131570740
   031690001570750030760400041082049058000
   169036157068003169041157069
MJ 1140 DATA 0030320862281620801690111570
   66003169133157068003169039157069003169
   009157072003169000157073003
OC 1150 DATA 0320862280320710441620801690
   11157066003169108157068003169039157069
   003169010157072003169000157
XL 1160 DATA 0730030320862280322460440760
   53041068049058157041152042173126041201
   058240041173127041201058240
UE 1170 DATA 0341620961690031570660031690
   04157074003169000157075003169122157068
   003169041157069003032086228
UB 1180 DATA 0160320480351620961690031570
   66003169004157074003169000157075003169
   125157068003169041157069003
DU 1190 DATA 0320862280480031690000961620
   80169011157066003169142157068003169039
   157069003169014157072003169
KC 1200 DATA 0001570730030320862281692550
   96169048133133169000133132056165128233
   001133128165129233000133129
FW 1210 DATA 1731260412010582400721731270
   41201058240065162096169003157066003169
   008157074003169000157075003
DL 1220 DATA 1691221570680031690411570690
   03032086228016065162080169011157066003
   169142157068003169039157069
PS 1230 DATA 0031690141570720031690001570
   73003032086228076214042162096169003157
   066003169008157074003169000
DH 1240 DATA 1570750031691251570680031690
   41157069003032086228048065160000177132
   153042148043141028040162096
VQ 1250 DATA 1690111570660031690281570680
   03169040157069003169001157072003169000
   157073003032086228024165132
SN 1260 DATA 1050011331321651331050001331
   33056165128233001133128165129233000133
   129176191096162032169003157
EM 1270 DATA 0660031690131570740031690001
   57075003076239042082049058000169235157
   068003169042157069003032086
WG 1280 DATA 2281620321690401570660031690
   00157074003169000157075003076020043082
   049058000169016157068003169
MZ 1290 DATA 0431570690030320862281690481
   33133169000133132169002141028040165128
   141029040165129141030040162
UG 1300 DATA 0321690111570660031690281570
   68003169040157069003169003157072003169
   000157073003032086228160000
QE 1310 DATA 1771321410280401620321690111
   57066003169028157068003169040157069003
   169001157072003169000157073
LZ 1320 DATA 0030320862280241651321050011
   33132165133105000133133056165128233001
   133128165129233000133129149
OD 1330 DATA 0431980431761911690031410280
   40162032169011157066003169028157068003
   169040157069003169001157072
VV 1340 DATA 0031690001570730030320862281
   62032169012157066003032086228096000000
   071044066045162032169003157
PE 1350 DATA 0660031690131570740031690001
   57075003076095044082049058000169091157
   068003169044157069003032086
XL 1360 DATA 2281620321690401570660031690
   00157074003169000157075003076132044082
   049058000169128157068003169
VC 1370 DATA 0441570690030320862281620001
   42197043162032169007157066003169156157
   068003169039157069003169001
CJ 1380 DATA 1570720031690001570730030320
   86228032208044174197043173156039157199
   043232201013208206162032169
TH 1390 DATA 0121570660030320862280961731
   56039201032144030162080169011157066003
   169156157068003169039157069
UN 1400 DATA 0031690011570720031690001570
   73003032086228096162000189199043201076
   208003076015045201083208003
RB 1410 DATA 0761670452322240321442340962
   32160000189199043153125041232200192020
   144244169048133133169000133
DK 1420 DATA 1321690001331291690001331280
   32157041048003032098045162096169012157
   066003032086228162080169067
TA 1430 DATA 0450620460111570660031691181
   57068003169039157069003169015157072003
   169000157073003032086228032
TF 1440 DATA 2150420961620961690071570660
   03169156157068003169039157069003169001
   157072003169000157073003032
FH 1450 DATA 0862280480361600001731560391
   45132024165132105001133132165133105000
   133133024165128105001133128
TM 1460 DATA 1651291050001331290760980450
   96232160000189199043153125041232200192
   020144244032219045032017042
BP 1470 DATA 1620961690121570660030320862
   28169000133129169000133128169048133133
   169000133132096000000000000
FU 1480 DATA 1690001331291690001331281690
   48133133169000133132162080169011157066
   003169096157068003169039157
IX 1490 DATA 0690031690121570720031690001
   57073003032086228162032169003157066003
   169013157074003169000157075
SW 1500 DATA 0030760330460820490580001690
   29157068003169046157069003032086228162
   032169040157066003169000157
XP 1510 DATA 0740031690001570750030630460
   22047076070046082049058000169066157068
   003169046157069003032086228
MZ 1520 DATA 1620321690071570660031691561
   57068003169039157069003169001157072003
```

```
   1690001570730030320862281 73
HO 1530 DATA 1560392010022082191620321690
   0715706600316921515706800316904515 7069
   003169001157072003169000157
OR 1540 DATA 0730030320862281620321690071
   5706600316921615706800316904515 7069003
   169001157072003169000157073
BJ 1550 DATA 0030320862281620321690071570
   6600316915615706800316903915 7069003169
```

```
   001157072003169000157073003
TM 1560 DATA 0320862281600001731560391451
   3202416513210500113313216513310500 0133
   133024165128105001133128165
DS 1570 DATA 1291050001331290561732150452
   3300114121504517321604523300014121 6045
   173215045013216045208168162
PT 1580 DATA 0321690121570660030320862280
   9622400222500200 0039
```

ST RESOURCE

LINKLINE

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LISTING 1

```
/*
 *   LinkLine/ST
 *   File: LINKLINE.C
 *   version 041286
 *   (c) 1986 Antic Publishing
 *   Written by Patrick Bass
 *
 *   The purpose of this program is to provide a simple
 *   way to transport files betwixt the 800 series and us.
 *
 *---- Alcyon Include File -----------------*/

#include        "osbind.h"

#define     TRUE            (1)
#define     FALSE           (0)
#define     CANCEL          (0)
#define     NO              (2)
#define     ERROR           (-1)
#define     begin           {
#define     end             }
#define     wend            }
#define     repeat          }
#define     next            }
#define     endif           }
#define     not             !
#define     equals          ==
#define     does_not_equal  !=
#define     then
#define     AND             &&
#define     ORed_with       |
#define     DELAY           for( delay=0; delay<32767; delay++ );
#define     ESC             27
#define     WHITE           0
#define     BLACK           1
#define     RS232           1
#define     CONSOL          2
#define     LOAD            1
#define     SAVE            2
#define     STX             2
#define     ETX             3
#define     CR              13
#define     LF              10
#define     ATARIEOL        155

/*--------------- Alcyon Declarations/Equates --------*/
```

continued on next page

```
int   contrl[ 12 ],
      intin[ 256 ],   ptsin[ 256 ],
      intout[ 256 ], ptsout[ 256 ],
      workin[]={ 1,1,1,1,1,1,1,1,1,1,2 }, workout[ 57 ],
      i, j, k, l, character,
      resolution, inchar, lenlo, lenhi, mx, my, color,
      delay, drive, dum, lo_word, hi_word,
      gem_handle, file_handle, read_handle,
      for_reading, action_desired, file_index,
      bytes_read, bytes_to_read, button, pressed, finished,
      new_palette[ 16 ], org_palette[ 16 ];

char text_buffer[ 32200 ], path[ 10 ], filename[ 20 ],

      hialert[]="[1][ Welcome to LinkLine/ST | v.041286 ][ Perform ]",
      typealert[]="[3][ Load: 8Bit->ST    Save: ST->8Bit ][ Load | Save ]",
      loadlert[]="[3][ Enter the 8Bit file to load. ][ Select ]",
      savelert[]="[3][ Select the ST file to transfer. ][ Select ]",
      devalert[]="[3][ Select the new device:filename.ext  ][ Select ]",
      morealert[]="[3][ Want to transfer another file? ][ Yes | No ]",
      tksalert[]="[3][Thanks for using|LinkLine/ST|v.041286][ Exit ]";

long        max_len=32200, write_handle, write_bytes;

/*-----------------------------------------------------------------------*/
main()
begin
      initialize();

      do begin

            communicate();

      repeat while( not finished );

      terminate();
end

/*-----------------------------------*/
initialize()
begin
      appl_init();
      gem_handle=graf_handle( &i, &i, &i, &i );
      v_opnvwk( workin, &gem_handle, workout );
      form_alert( 1, hialert );
      finished=FALSE;
      for_reading=0;
end

/*-----------------------------------*/
communicate()
begin
      action_desired=form_alert( 1, typealert );

      if( action_desired equals LOAD )then load_file();

      if( action_desired equals SAVE )then save_file();

      button=form_alert( 2, morealert );
      if( button equals NO )then finished=TRUE;
end

/*---------------------------*/
load_file()
begin
      form_alert( 1, loadlert );
            DELAY
      path[ 0 ]='D'; path[ 1 ]='1';
      path[ 2 ]=':'; path[ 3 ]='*'; path[ 4 ]=0;
      filename[ 0 ]=0;
```

```
        fsel_input( path, filename, &button );
        if( button does_not_equal CANCEL )then begin
                v_hide_c( gem_handle );

                load_8Bit_file();
                write_the_file();

                v_show_c( gem_handle );
        endif
end

/*----------------------------*/
save_file()
begin
        form_alert( 1, savelert );

        read_the_file();

        lenlo=( bytes_read&0x00ff );
        lenhi=(( bytes_read&0xff00 )>>8 );

        form_alert( 1, devalert );
        path[ 0 ]='D'; path[ 1 ]=':';
        path[ 2 ]='*'; path[ 3 ]=0;
        fsel_input( path, filename, &button );
        if( button does_not_equal CANCEL )then begin
                v_hide_c( gem_handle );

                send_command( SAVE );
                send_file();

                v_show_c( gem_handle );
        endif
end

/*----------------------------*/
send_file()
begin
        for( i=0; i<10; i++ ) begin
                DELAY
        next
        Bconout( RS232, STX );
        Bconout( RS232, lenlo );
        Bconout( RS232, lenhi );
        for( file_index=0; file_index<bytes_read; file_index++ ) begin

                Bconout( RS232, text_buffer[ file_index ] );

        next
        Bconout( RS232, ETX );
end

/*----------------------------*/
read_the_file()
begin
        file_handle=ERROR;
        drive=Dgetdrv();
        path[ 0 ]=( drive+'A' ); path[ 1 ]=':';
        path[ 2 ]='*'; path[ 3 ]='.'; path[ 4 ]='*'; path[ 5 ]=0;
        filename[ 0 ]=0;
        fsel_input( path, filename, &button );
        if( button does_not_equal CANCEL )then begin

                v_hide_c( gem_handle );
                file_handle=Fopen( filename, for_reading );
                if( file_handle > ERROR )then begin

                        bytes_read=Fread( file_handle, max_len, text_buffer );

                endif
```

```
        Fclose( file_handle );
        v_show_c( gem_handle );
    endif
end

/*----------------------------------*/
write_the_file()
begin
    v_hide_c( gem_handle );
    file_handle=Fcreate( filename, 0 );
    if( file_handle > ERROR )then begin

        Fwrite( file_handle, (long)bytes_read, text_buffer );

    endif
    Fclose( file_handle );
    v_show_c( gem_handle );
end

/*----------------------------------*/
load_8Bit_file()
begin
    v_hide_c( gem_handle );

    send_command( LOAD );
    get_file();

    v_show_c( gem_handle );
end

/*----------------------------------*/
get_file()
begin
    do begin
        inchar=Bconin( RS232 );
    repeat while( inchar does_not_equal STX );

    lenlo=Bconin( RS232 );
    lenhi=Bconin( RS232 );
    bytes_to_read=(( 256*lenhi )+lenlo );

    for( file_index=0; file_index<bytes_to_read; file_index++ ) begin

        text_buffer[ file_index ]=Bconin( RS232 );

    next
    bytes_read=file_index;
end

/*----------------------------------*/
send_command( send_type )
int  send_type;
begin
    Bconout( RS232, STX );

    if( send_type equals SAVE )then Bconout( RS232, 'S' );
    if( send_type equals LOAD )then Bconout( RS232, 'L' );
    i=0;
    while( path[ i+1 ]>0 ) begin
        if( path[ i ] does_not_equal '\\' )then begin
            Bconout( RS232, path[ i ] );
        endif
        i++;
    wend
    i=0;
    while( filename[ i ]>31 ) begin
        Bconout( RS232, filename[ i++ ] );
    wend
    Bconout( RS232, CR );
end
```

```
/*---------------------------------*/
terminate()
begin
      form_alert( 1, tksalert );
      v_clsvwk( gem_handle );
      appl_exit();
end
```

ST RESOURCE

GRAFCON-ST MEDIUM

Article on page 62

LISTING 1

```
/*
 * File:MEDIUM.C
 * (c) 1986 Antic Publishing
 * V. 032486
 * Written by Patrick Bass
 *
 * These are the GrafCon functions for conversion
 *   to and from medium resolution.
 *
 *---------------------------------*/
lomed()
begin
      int   *src, *dest,
            pixword, temp_pixword,
            pixlo1, pixhi1,
            pixlo2, pixhi2,
            row, column;

      v_hide_c( handle );
      Setscreen( des_pix, des_pix, -1 );
      Setpallete( new_palette );
      src=src_pix;
      dest=des_pix;
      for( row=top; row<bottom; row++ ) begin
            for( column=0; column<20; column++ ) begin

                  temp_pixword=( *src++ );
                  pixword=( *src++ );
                  blend( temp_pixword, pixword );
                  pixhi1=hi_word; pixlo1=lo_word;

                  temp_pixword=( *src++ );
                  pixword=( *src++ );
                  blend( temp_pixword, pixword );
                  pixhi2=hi_word; pixlo2=lo_word;

                  ( *dest++ )=pixhi1; ( *dest++ )=pixhi2;
                  ( *dest++ )=pixlo1; ( *dest++ )=pixlo2;
            next
      next
      v_show_c( handle );
end

/*---------------------------------*/
medlo()
begin
```

continued on next page

```
	int	*src, *dest,
		pixlo1, pixlo2, pixhi1, pixhi2,
		row, column;

	v_hide_c( handle );
	Setscreen( des_pix, des_pix, -1 );
	Setpallete( new_palette );
	src=src_pix;
	dest=des_pix;

	for( row=top; row<bottom; row++ ) begin
		for( column=0; column<20; column++ ) begin

			pixhi1=( *src++ ); pixhi2=( *src++ );
			pixlo1=( *src++ ); pixlo2=( *src++ );

			separate( pixhi1, pixlo1 );
			pixhi1=hi_word; pixlo1=lo_word;

			separate( pixhi2, pixlo2 );
			pixhi2=hi_word; pixlo2=lo_word;

			( *dest++ )=pixhi1; ( *dest++ )=pixlo1;
			( *dest++ )=pixhi2; ( *dest++ )=pixlo2;
		next
	next
	v_show_c( handle );
end

/*-----------------------------------*/
medhi()
begin
	int	*src, *upper_dest, *lower_dest,
		pixword, lo_pixword, hi_pixword,
		pixlo1, pixlo2, pixhi1, pixhi2,
		row, column;

	v_hide_c( handle );
	Setscreen( des_pix, des_pix, -1 );
	Setpallete( new_palette );
	src=src_pix;
	upper_dest=des_pix;

	for( row=top; row<bottom; row++ ) begin
		for( column=0; column<len_pixline; column++ ) begin

			lower_dest=( upper_dest+len_pixline );
			( *upper_dest++ )=( *src++ );
			( *lower_dest )=( *src++ );

		next
		upper_dest=upper_dest+len_pixline;
	next
	v_show_c( handle );
end

/*-----------------------------------*/
himed()
begin
	int	*dest, *upper_src, *lower_src,
		row, column;

	v_hide_c( handle );
	Setscreen( des_pix, des_pix, -1 );
	Setpallete( new_palette );
	upper_src=src_pix;
	dest=des_pix;

	for( row=top; row<bottom; row++ ) begin
		for( column=0; column<len_pixline; column++ ) begin
```

```
            lower_src=upper_src+len_pixline;

            ( *dest++ )=( *upper_src++ );
            ( *dest++ )=( *lower_src );

        next
        upper_src=upper_src+len_pixline;
    next
    v_show_c( handle );
end
```

ST RESOURCE

ONLINE PICTURE VIEWER

Article on page 62

LISTING 1

```
/*
 *  RLE ASCII File Viewer
 *  File: RLE.C
 *  version 042486
 *  (c) 1986 Antic Publishing
 *  Written by Patrick Bass
 *
 *  The purpose of this program is to display
 *   and save encoded ASCII RLE files.
 *
 *---- Alcyon Include File -----------------*/

#include        "osbind.h"

#define    TRUE              (1)
#define    FALSE             (0)
#define    CANCEL            (0)
#define    NO                (2)
#define    ERROR             (-1)
#define    begin             {
#define    end               }
#define    wend              }
#define    repeat            }
#define    next              }
#define    endif             }
#define    not               !
#define    equals            ==
#define    does_not_equal    !=
#define    then
#define    AND               &&
#define    DELAY             for( delay=0; delay<32767; delay++ );
#define    NEO               1
#define    DEGAS             2
#define    DOODLE            3
#define    LOREZ             0
#define    MEDREZ            1
#define    HIREZ             2
#define    ESCAPE            27
#define    WHITE             0
#define    BLACK             1

/*--------------- Alcyon Declarations/Equates --------*/
```

continued on next page

```
int   contrl[ 12 ],
      intin[ 256 ],  ptsin[ 256 ],
      intout[ 256 ], ptsout[ 256 ],
      found, row, column, drawing,
      workin[]={ 1,1,1,1,1,1,1,1,1,1,2 }, workout[ 57 ],
      i, j, k, l, resolution, dest_type,
      write_rez, mx, xres, my, yres, color, max_color,
      delay, drive, top, bottom, dum,
      gem_handle, read_handle, pix_handle, for_reading,
      bytes_read, button, pressed, finished, rle_index,
      box_width, box_height, box_sx,
      whitedots, blackdots,
      new_palette[ 16 ], org_palette[ 16 ], box[ 50 ],
      off_x, off_y, x_scale, y_scale, x_bump, y_bump;

char  dest_picture[ 32767 ],
      rle_buffer[ 32767 ],  neo_buffer[ 100 ],
      path[]="a:*.*",
      in_filename[ 32 ], out_filename[ 32 ],

      welalert[]="[1][ Welcome to | RLE/520 | v.042486 ][ Perform ]",
      oreadalert[]="[3][ Select the RLE picture| to see. ][ Select ]",
      owritealert[]="[3][ Select the file to write to. ][ Select ]",
      dtypealert[]="[3][ Dest picture will be type: ][Neo|Degas|Doodle]",
      vertlert[]="[3][ Convert another RLE picture? ][ Yes | No ]",
      tksalert[]="[3][ Thanks for using | RLE/520 | v.042486 ][ Exit ]";

long  max_len=32767, write_handle, write_bytes,
      org_pix, des_pix, answer, temp_answer;

/*-----------------------------------------------------------------------*/
main()
begin
      initialize();

      do begin

            convert();

      repeat while( not finished );

      terminate();
end

/*-------------------------------------*/
initialize()
begin
      appl_init();
      gem_handle=graf_handle( &i, &i, &i, &i );
      v_opnvwk( workin, &gem_handle, workout );
      xres=workout[ 0 ]; yres=workout[ 1 ];

      for( i=0; i<16; i++ ) begin
            new_palette[ i ]=org_palette[ i ]=Setcolor( i, -1 );
      next

      org_pix=Physbase();
      des_pix=(( 0xffff00 & dest_picture )+0x0100 );

      resolution=Getrez();

      if( resolution equals LOREZ )then begin
            off_x=32; off_y=4;
            x_scale=1; y_scale=1;
            x_bump=0; y_bump=0;
            write_rez=0;
      endif

      if( resolution equals MEDREZ )then begin
            off_x=64; off_y=4;
            x_scale=2; y_scale=1;
```

```
        x_bump=1; y_bump=0;
        write_rez=1;
endif

if( resolution equals HIREZ )then begin
        off_x=64; off_y=8;
        x_scale=2; y_scale=2;
        x_bump=1; y_bump=1;
        write_rez=2;
endif

box_width=256; box_height=192;
form_alert( 1, welalert );
        finished=FALSE;
        for_reading=0;
        top=0; bottom=200;
end

/*----------------------------*/
convert()
begin
        read_the_picture();
        select_parameters();
        make_picture();
        write_the_picture();

        button=form_alert( 1, vertlert );
        if( button equals NO )then finished=TRUE;
end

/*----------------------------*/
wait_for_mousepress()
begin
        int  mx, my, pressed, dum;

        do begin
                graf_mkstate( &mx, &my, &pressed, &dum );
        repeat while( not pressed );
end

/*----------------------------*/
select_parameters()
begin
        dest_type=form_alert( 2, dtypealert );
                DELAY
end

/*----------------------------*/
make_picture()
begin
        found=FALSE;
        rle_index=0;
        for( i=0; i<bytes_read; i++ )begin
                if( rle_buffer[ i ] equals ESCAPE AND
                    rle_buffer[ i+1 ] equals 'G'  AND
                    rle_buffer[ i+2 ] equals 'H' )then begin
                     found=TRUE;
                     rle_index=( i+3 );
                endif
        next

        if( found )then begin
                draw_picture();
        endif

        if( not found )then begin
                form_alert( 1, "[1][ That's not an RLE file. ][ Split ]" );
        endif
end

/*----------------------------*/
```

continued on next page

```
draw_picture()
begin
      int   mx, my, pressed, dum;

      drawing=TRUE;
      Setscreen( des_pix, des_pix, -1 );
      row=0; column=0;
      v_hide_c( gem_handle );

      while( drawing )begin

            blackdots=( rle_buffer[ rle_index++ ]-32 );
            whitedots=( rle_buffer[ rle_index++ ]-32 );

            if( blackdots+32 equals ESCAPE )then drawing=FALSE;

            while( blackdots AND drawing )begin
                  plot( row, column, BLACK );
                  blackdots--;
                  column++;
                  end_of_line_check();
            wend

            while( whitedots AND drawing )begin
                  plot( row, column, WHITE );
                  whitedots--;
                  column++;
                  end_of_line_check();
            wend

            graf_mkstate( &mx, &my, &pressed, &dum );
            if( pressed )then drawing=FALSE;
      wend

      v_show_c( gem_handle );
      wait_for_mousepress();
      Setscreen( org_pix, org_pix, -1 );
end

/*------------------------------*/
end_of_line_check()
begin
      if( column>255 )then begin
            column=0;
            row++;
      endif
      if( row>191 )then drawing=FALSE;
end

/*------------------------------*/
plot( row, column, color )
int row, column, color;
begin
      vsl_color( gem_handle, color );

      box[ 0 ]=off_x+( column*x_scale );
      box[ 1 ]=off_y+( row*y_scale );

      box[ 2 ]=off_x+( column*x_scale )+x_bump;
      box[ 3 ]=off_y+( row*y_scale );

      box[ 4 ]=off_x+( column*x_scale )+x_bump;
      box[ 5 ]=off_y+( row*y_scale )+y_bump;

      box[ 6 ]=off_x+( column*x_scale );
      box[ 7 ]=off_y+( row*y_scale )+y_bump;
      box[ 8 ]=off_x+( column*x_scale );
      box[ 9 ]=off_y+( row*y_scale );

      v_pline( gem_handle, 5, box );
end
```

```
/*----------------------------*/
read_the_picture()
begin
     form_alert( 1, oreadalert );
     drive=Dgetdrv();
     path[ 0 ]=( drive+'A' );

     fsel_input( path, in_filename, &button );
     v_hide_c( gem_handle );
     if( button does_not_equal CANCEL )then begin

          read_handle=Fopen( in_filename, for_reading );
          if( read_handle > ERROR )then begin

               bytes_read=Fread( read_handle, max_len, rle_buffer );

          endif
          Fclose( read_handle );
     endif
     v_show_c( gem_handle );
end

/*----------------------------------*/
write_the_picture()
begin
     Setscreen( org_pix, org_pix, -1 );
     Setpallete( org_palette );

     form_alert( 1, owritealert );
     pix_handle=ERROR;
     fsel_input( path, out_filename, &button );
     v_hide_c( gem_handle );
     Setscreen( des_pix, des_pix, -1 );
     Setpallete( new_palette );

     if( button does_not_equal CANCEL )then begin
          pix_handle=Fcreate( out_filename, 0 );
          if( pix_handle > ERROR )then begin

               if( dest_type equals NEO )then begin
                    Fwrite( pix_handle, 4L, &neo_buffer );
                    Fwrite( pix_handle, 32L, &new_palette );
                    Fwrite( pix_handle, 12L, &out_filename );
                    Fwrite( pix_handle, 80L, &neo_buffer );
                    Fwrite( pix_handle, 32000L, des_pix );
               endif

               if( dest_type equals DEGAS )then begin
                    Fwrite( pix_handle, 2L, &write_rez );
                    Fwrite( pix_handle, 32L, &new_palette );
                    Fwrite( pix_handle, 32000L, des_pix );
               endif

               if( dest_type equals DOODLE )then begin
                    Fwrite( pix_handle, 32000L, des_pix );
               endif
          endif
          Fclose( pix_handle );
     endif
     Setscreen( org_pix, org_pix, -1 );
     Setpallete( org_palette );
     v_show_c( gem_handle );
end

/*---------------------------------*/
terminate()
begin
     ferm_alert( 1, tksalert );
     v_clsvwk( gem_handle );
     appl_exit();
end
```

TECH TIPS

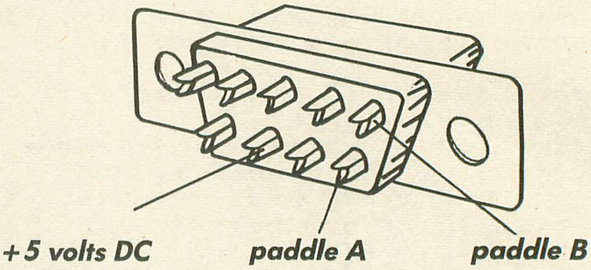
If you want to try a different approach to protecting your valuable programs, you might consider a hardware key. Hardware key protection is now starting to appear with commercial software such as Batteries Included's Paper-Clip word processor.

HOW IT WORKS

Every joystick port on an 8-bit Atari has two PADDLE inputs. Each input can return a number between zero and 228 to your program. This value is based on the amount of electrical resistance in the PADDLE controller.

Usually, this resistance is provided by a paddle controller. But if we solder a pair of fixed resistors across the appropriate pins of the joystick plug, we can easily write code in our program to look for these known values and take whatever action we want if they are not there.

FIGURE 1



You will need a few inexpensive components: a DB-9 female plug ($2.49, Radio Shack #276-1538), a hood for the plug ($1.99, Radio Shack #276-1539) and two resistors (19 cents, Radio Shack) with any different values between 470 ohms and 10K ohms. These resistors will supply your hardware encoding.

Solder one end of both resistors to the plug's pin 7. Solder the free end of one resistor to pin 9 (PADDLE 0) and the free end of the other resistor to pin 5 (PADDLE 1). Enclose the resistors with the hood.

Insert your key into joystick port 1 and boot your computer with BASIC. Type in this short program:

```
1 A=PEEK(624):B=PEEK(625)
2 ? "A = ";A:? "B = ";B
```

You will see values for A and B displayed on the screen. These are the values you will want your program to look for. For example, you could write a line like this:

```
100 IF PEEK(624)<>A AND PEEK(625)<>B THEN
PRINT "INSERT KEY":GOTO 100
```

If you intend to use the key with a BASIC program, a machine language loader that checks for the key would probably be the best approach. If you write one, share it with other Atari users by sending it to the **Antic** I/O Board for possible publication.

*(**Antic** came across this Hardware Key project in the newsletter of Milatari, the Milwaukee Atari Users Group, where it was put together by Gerald Hagopian.*—ANTIC ED)

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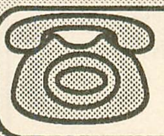
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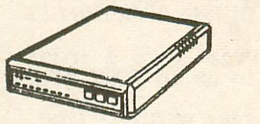
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Epson	Call
Citizen	Call

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QMI 1200ST	$129.00
Hayes 1200	Call
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June Specials

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Apple][Emulator	Call
IBM Emulator	Call
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Lattice C	Call
GST C	Call
Andra	Call
UCSD Pascal	Call
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Regent Word II	$35.00
Regent Base	Call
VIP Lite	Call
Micro C Shell	Call
Rubber Stamp	Call
Megafont II	Call
Meta 68000 Asm	Call
Brattacas	Call
Degas	$24.95
Personal Pascal	$39.00
ST Talk	$13.00
Typesetter ST	$24.00
Zoomracks	$48.99
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Personal Prolog	Call
Kings Quest II	Call

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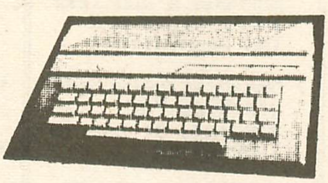
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Atari 65XE	Call
Atari 1050	Call
Indus GT	$188.00
Atari XC11	Call
Atari 1027	$98.00

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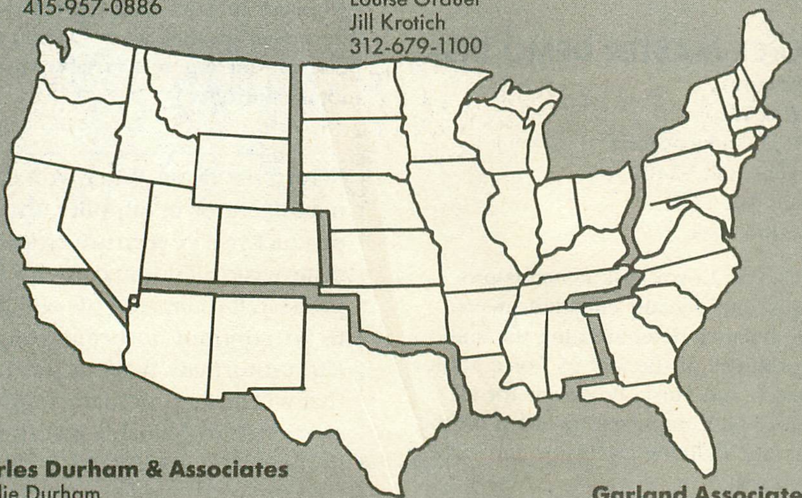
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800XE PLUS

(memory upgrade)
Triple C Computers
6807 226th Avenue N.E.
Stacy, MN 55079
(612) 462-4435
$45

This kit supplies all hardware and signal decoding to upgrade an 800XL to 256K memory. It is compatible with the 130XE RAMdisk and the SpartaDOS Construction Set. Soldering is required and you must provide your own 256K chips. Triple C will install the kit in your 800XL for an extra $30.

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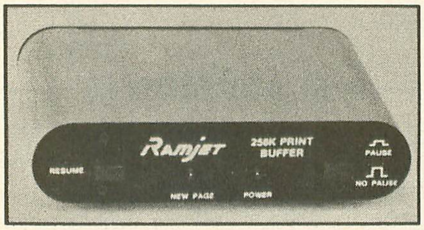
(business software)
SoSoft
2513 #E Sylvester Road
Albany, GA 31707
(912) 888-0821
$79.95, 48K disk

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MECH BRIGADE

(entertainment software)
Strategic Simulations Inc.
1046 N. Rengstorff Avenue
Mountain View, CA 94043
(415) 964-1353
$59.95, 48K disk

In this "sister game" to Kampfgruppe, Soviet and NATO forces fight modern tactical warfare in a time period spanning the 1980s and 1990s. Four scenarios, each in a different area of West Germany, and over 40 armored vehicles are provided.



RAMJET 256K

(printer buffer)
Omnitronix Inc.
P.O. Box 43
Mercer Island, WA 98040
(206) 236-2983
$269

The fast **Ramjet 256K Print Buffer** comes in versions for either standard parallel or RS-232 serial printers. It has a pause button for using single sheets of paper.

VOICE MASTER DEMO DISK

(software)
Covox Inc.
675-D Conger Street
Eugene, OR 97402
(503) 342-1271
$5, 16K disk

This new Covox disk contains programs and digitally-encoded speech vocabularies demonstrating the audio capabilities of the $89.95 Voice Master Speech and Music Processor for all Atari 8-bit computers. Included on the disk are a talking calculator and talking keyboard.

SCENERY DISKS 1-6

(For Flight Simulator II)
SubLogic Corporation
713 Edgebrook Drive
Champaign, IL 61820
(217) 359-8482
$19.95, 48K disk

Each of these scenery disks covers a region of the Western half of the U.S. and expands the potential flying environment of SubLogic's best-selling Flight Simulator II software. The six-disk set costs $99.95.

TINKERTUNE

(software)
Minerva Research Limited
35 Olympia Avenue
Victoria, BC
Canada V8V 2N3
(604) 385-3711
$29.95, 48K disk

Tinkertune turns your computer into a three-octave mini-organ with a choice of nine different scales, four wave envelopes and percussion sound. The live performance feature plays a single note or a full chorus at the touch of a key or joystick.

HOME ROBOTICS WORKSHOPS

(robot kits)
Multibotics Inc.
#A 2561 South 1560 West
Woodscross, UT 84087
(801) 298-9077
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Build robots to interface with your computer. These workshops provide projects and experiments showing how computers interact with the real world. The master module allows your computer to function as a variable-speed motor controller.

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For Atari computers with 48K memory
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